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Management of the Main Hawaiian Islands Bottomfish Fishery: Fishers' Attitudes, Perceptions, and Comments

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and
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EXECUTIVE SUMMARY

This paper has examined current attitudes and perceptions of the bottomfish fleet towards management agencies, past and existing management tools, and hypothetical future management alternatives. Specifically, the paper provides results of a mail survey fielded in 2010 that measured fisher support for specific past, current, and future management initiatives.

The survey was mailed to 1012 bottomfish fishermen in Hawaii and 519 fishermen completed the survey, equating to a response rate of approximately 51%. However, response rates of subgroups within the survey population varied spatially and by degree of activity. The highest county-level response was on Oahu (60%) followed by Kauai, Maui, and Hawaii (51%, 50%, and 42%, respectively). Commercial fishermen who target Deep 7 species and were active in the 2009-2010 fishing season, considered more avid bottomfish fishermen, had a response rate of 60%. On the other hand, fishermen not active in the recent fishing season (30%), those not targeting Deep 7 species (46%), and noncommercial permit holders (43%) all showed lower response rates.

In comparing the attitudes and perceptions of fishermen, we found few differences across counties. Avidity and effort in the fishery, as reflected in pounds landed, were much stronger indicators of differences in attitudes and perceptions than county of residence, and any nominal county differences can likely be attributed to differences in the effort composition of the bottomfish fishing community on each island.

Fishermen expressed their dissatisfaction with managing agencies, with only 25% of fishermen indicating satisfaction with federal management of the fishery and 24% indicating satisfaction with state management. Fishermen also expressed dissatisfaction with past management approaches. The majority of fishermen do not view past management tools as being effective in promoting a sustainable bottomfish fishery; however, a large portion of fishermen appear to support the existing TAC management program. In considering alternative specifications of the TAC limit, fishermen were marginally supportive of separate commercial and recreational quotas as well as island-specific TACs. Across all categories of Hawaii bottomfish fishermen, survey respondents strongly opposed the potential introduction of a catch share system for the bottomfish fishery.

A clear finding from this research is that fishermen have numerous suggestions for how the bottomfish fishery should be managed and topics they feel need further study. Managing agencies need to continue efforts to interact with the fishing community to improve relations which will likely contribute to successful management of the fishery into the future.

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INTRODUCTION

The main Hawaiian Islands (MHI) bottomfish fishery is a hook-and-line fishery that primarily targets deep water snappers and groupers in deep-slope habitat located between 50 and 200 fathoms. The Hawaii bottomfish management unit species (BMUS) complex consists of 14 species of snapper, grouper, and jacks. Of particular interest to management is a subgroup of species, important economically and culturally, known collectively as the *Deep 7*[1]. These high-value species make up a majority share of BMUS landings and thus serve as a proxy for determining population status of the Hawaii bottomfish complex.

In economic terms, the small scale MHI bottomfish fishery pales in relation to large pelagic fisheries in the region, but its cultural significance is comparable. Bottomfish fishing was a part of the economy and culture of the indigenous people of Hawaii long before European explorers first visited the islands (Spalding, 2006). Descriptions of traditional fishing practices indicate that native Hawaiians harvested the same deep-sea bottomfish species as the modern fishery and used some of the same specialized gear and techniques employed today (WPRFMC, 2009). Today's MHI bottomfish fishery is a complex mix of commercial, recreational, cultural, and subsistence fishermen whose fishing behaviors do not fit easily into existing legal and regulatory frameworks, complicating monitoring and management of the fishery.

The MHI bottomfish fishery has historically been an open-access fishery. It grew steadily through the 1970s and into the 1980s. Landings peaked in 1988 at approximately 1.2 million pounds, valued at $6.3 million (in 2010 dollars). The following decades saw steady declines in fishery production with landings of 315 thousand pounds in 2006, a 73% decline from the historical peak. While a portion of this decline can be attributed to reduced effort in the fishery, another contributor was a decline in the stock abundance with research indicating that during this period of decline the stock was experiencing overfishing (Moffitt et al., 2006; WPRFMC, 2005).

In 1998, in response to a decade of steady declines in fishery production coupled with troubling biological indicators, the State of Hawaii created 19 spatial closure areas around the MHI (bottomfish restricted fishing areas [BFRAs]), established a bottomfish boat registry, and introduced a noncommercial bag limit for Deep 7 species. Further, in 2005 the National Marine Fisheries Service (NMFS) declared that overfishing was occurring for BMUS in the Hawaiian Archipelago and determined that localized depletion had occurred in the MHI. NMFS recommended a reduction in fishing mortality to address overfishing concerns (WPRFMC, 2005). The Western Pacific Regional

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[1] The *Deep 7* species include: ehu (*Etelis carbunculus*), gindai (*Pristipomoides zonatus*), kalekale (*Pristipomoides sieboldii*), hapuupuu (*Epinephelus quernus*), onaga (*Etelis corsucans*), opakapaka (*Pristipomoides filamentosus*), and lehi (*Aphareus rutilans*).

Fishery Management Council took action by instituting an emergency summer closure of the fishery from May 15 to September 30, 2007. This time period was reasonable because it coincided with the spawning period for a number of BMUS (WPRFMC, 2005). Moreover, it coincided with the peak of 'ahi fishing season, thereby easing the economic effects of the closure by providing alternative economic opportunities, and represented an approximate mortality reduction in line with NMFS recommendations.

In October of 2007, after nearly five months of emergency closure, the main Hawaiian Islands bottomfish fishery reopened under a total allowable catch (TAC) management regime which set a quota for MHI Deep 7 bottomfish. Under the TAC regime, the fishery remains open each year until the quota is reached, based on commercial catch reports for the season. At this point both the commercial and noncommercial fisheries remain closed through the balance of the fishing year (currently August 31). This represents a stark shift in fisheries management in Hawaii as no other comparable small scale fishery has been subject to a quota. The past 4 years of TAC management have been challenging as fishermen have acclimated to the new management institution and managing agencies have faced the difficulties of implementing and regulating the annual quota.

Efforts to engage the bottomfish community have increased dramatically in recent years through the cooperative work of managing agencies. A website dedicated to Hawaii bottomfish issues serves as a one stop shop for fishery regulations, current scientific research, and allows fishermen to monitor quota levels throughout the fishing season. Additionally, a quarterly newsletter is mailed to bottomfish fishermen providing similar updates and short articles of interest. In recent years, a Bottomfish Outreach Team with contributors from all managing agencies have held community meetings across the State of Hawaii to meet with the fishing community and explain management approaches and introduce new regulations.

Using recent survey data, this paper details current attitudes and perceptions of the MHI bottomfish fleet towards past, current, and potential future management of this fishery. Additionally, we provide a record of the multitude of individual comments we received from fishermen in response to open-ended survey questions. These findings provide fishery managers with insights into the fishery from the fisherman's perspective and could help guide future management alternatives.

SURVEY DESIGN AND ADMINISTRATION

A survey of the MHI bottomfish fishery was fielded between April and June 2010. The survey instrument is provided in Appendix A. The intent of the survey was twofold: first, to develop an economic profile of the bottomfish fleet, and second, to gauge the attitudes and perceptions of the fleet towards recent changes in the management of this fishery. The attitudinal questions touched on previous management tools, the current TAC management regime, and the potential for future management in the context of a catch share system. Additionally, we wanted to allow fishermen the opportunity to provide direct feedback to management agencies in terms of suggestions for future management

and research, so a number of open-ended comment sections were included in the questionnaire.

We employed a modified Dillman mail survey methodology including a pre-letter, initial survey mailing, postcard reminder, and second mailing (Dillman et al., 2008). A total of 1,012 survey booklets were mailed to two groups of fishermen: State of Hawaii commercial marine license (CML) holders and federal noncommercial bottomfish permit holders. Any fisherman holding a State of Hawaii CML and who reported the catch of any bottomfish since November 2008 received a questionnaire. This group amounted to 916 fishermen, or 91% of the total survey population. We chose to include in our survey population all license holders for not only the current (2009-2010) fishing season, but also for the previous fishing season (2008-2009) for two primary reasons. First, there is no standardized renewal period (corresponding to a fishing season), and a CML is valid for one calendar year from date of purchase. The majority of renewals take place in April and May, corresponding with the peak pelagic fishing season in the islands. Thus, depending on when a fisher purchased a license, if we used the most recent CML database prior to survey mailing (in April 2010), we could potentially miss a number of fishermen that had fished during the most recent bottomfish fishing season. Second, the larger survey population would allow us to understand the attitudes and perceptions of fishermen who had fished in recent years, although perhaps not in the most recent fishing season, and thus have still been affected by recent management changes.

The remaining 96 fishermen (9.5%) of our survey population,were noncommercial fishermen that have held a federal noncommercial bottomfish permit, at some point in time, since the permit was introduced in 2007. The noncommercial permit is required of noncommercial fishermen that land BMUS in federal waters (from 3 to 200 miles offshore).

RESPONDENT SUMMARY

A total of 519 surveys were completed, equating to a response rate of approximately 51% (see Table 1). However, response rates of subgroups within the survey population varied spatially and by degree of activity (see Figs. 1 and 3). Commercial fishermen who target Deep 7 species and were active in the 2009-2010 fishing season, considered more avid bottomfish fishermen, had a response rate of 60%. On the other hand, fishermen not active in the recent fishing season (30%), those not targeting Deep 7 species (46%), and noncommercial permit holders (43%) all showed lower response rates. Our results exhibit slight avidity bias as approximately 80% of our survey respondents were active in the past 12 months (April 2009 – April 2010), compared to 73% of our survey population, but we do not consider this to negatively affect our results.

Our survey population of MHI bottomfish fishermen is distributed relatively evenly across the State of Hawaii, with the highest concentration found on the islands of Hawaii and Oahu (34.4% and 32.9%, respectively) while 20.5% of the survey population lives in Maui County and 12.3% resides on the island of Kauai. As shown in Figure 2 and Table

3, the overall distribution of our respondent pool is generally reflective of the distribution of our total survey population with slight overrepresentation from Oahu fishers. However, if we strictly consider CML-licensed Deep 7 fishermen active in the most recent fishing season, our respondent distribution more closely resembles the survey population distribution (see Fig. 4 and Table 2). Our noncommercial survey population is dominated by Oahu fishermen, as they comprise nearly 71% of the total federally permitted noncommercial population. The distribution for our noncommercial respondent pool is slightly overrepresentative of Maui County and Oahu, but again if we consider only active noncommercial fishers (those with a valid permit as of April 2009), our respondent pool is representative (see Table 3).

While our respondent pool may be slightly skewed spatially relative to the survey population, it accurately represents the fishery with respect to effort distribution. Table 4 shows the distribution of bottomfish fishermen in our respondent pool relative to the survey population, based on reported catch levels during the period covered in our survey (April 2009–April 2010). Commercially-licensed fishermen reporting catch of greater than 1000 pounds of Deep 7 bottomfish in the past 12 months will hereafter be referenced as "highliners."

In comparing the attitudes and perceptions of fishermen, we found few significant differences across counties. Avidity and effort in the fishery, as reflected in pounds landed, were much stronger indicators of differences in attitudes and perceptions than county of residence, and any nominal county differences can likely be attributed to differences in the effort composition of the bottomfish fishing community on each island. Table 5 illustrates this finding. The table shows that our respondent pool is fairly representative of each county with respect to the proportion of fishers at each effort level and also illustrates the differences between counties in the proportion of the survey sample (and respondent pool) associated with each effort level For example, whereas the highliner (per our definition) bottomfish fleet on Kauai, Oahu, and Hawaii in the survey sample comprises approximately 5%, 10%, and 10%, respectively, of the local bottomfish fishing community, the highliner population in Maui County is approximately 31%. Therefore, when considering differences between counties, comparisons will be confounded by the composition of the local fleet.

RESULTS

The success of any fishery management program relies heavily on how receptive stakeholders are to the managing agencies and whether they perceive regulations as being effective, based on sound science, and adequately enforced. The bottomfish fishery is entering its fifth year of a TAC management regime, and we used this survey opportunity to check the pulse of the fleet to determine how fishermen perceive the existing management framework. Questions covered topics ranging from previous management actions, existing management regulations, and current fishery conditions to hypothetical management options for the future.

Inherent in any attitudinal research is the potential for "no opinion" (NO) responses, whereby a respondent is truly ambivalent to the survey question or unwilling to provide an opinion. We attempted to identify NO responses and treated them separately for our analysis. Specifically, for questions with multipart responses, we evaluated each response to determine whether the respondent could be categorized as NO for that question and removed these responses from the analytical sample. For example, survey question 17 asks respondents to evaluate the effectiveness of six different management actions on promoting the sustainability of the bottomfish fishery (see Appendix A). For this question, we flagged those who marked *don't know* or *neutral* for all management tools as potential NO respondents. While these answers could very well be legitimate and accurate, for clarity of analysis we felt it appropriate to remove them from the analytical sample so as to not confound the distribution of answers by those respondents expressing varied opinions in response to specific management tools. As such, NO responses are not reflected in the estimates presented in the text or the tables. For each question in which NO responses were identified, we report the fraction of responses to that question that were identified as NO.

Opinions of Managing Agencies

One objective of the survey was to understand the relationship between the fishermen and bottomfish management agencies. Hawaii bottomfish fishermen expressed substantial dissatisfaction with fishery managers. A mere 25% of fishermen stated that they were satisfied (either *strongly* or *somewhat*) with federal management of the fishery, and 24% stated that they were satisfied with state management (see Table 6). However, the spectrum of public opinion is wide. Attitudes towards managing agencies were distributed rather evenly across all degrees of opinion, with the exception of *strongly satisfied*, with which only 4% of our sample identified. In general, noncommercial permit holders viewed managing agencies in a more positive light relative to commercial marine license holders and actually held a more positive view of federal management relative to state management. The most striking result is that only 6% of fishery highliners expressed a sense of satisfaction with State of Hawaii management whereas 77% indicated a level of dissatisfaction (50% of which were *extremely dissatisfied*). We found little differences across counties, target species, or between fishermen active in the most recent fishing season and those not active in the most recent season. These findings suggest that fishery management agencies, both federal and state, do not have the confidence of a significant portion of the fishery, complicating management of the fishery.

Opinions of Total Allowable Catch (TAC) Management

The introduction of a total allowable catch limit has been a very contentious issue in this fishery. A summary of recent TAC management performance is provided in Table 7. The initial TAC level of 178,000 pounds represented a catch level approximately 27% below the pre-TAC, 10-year average (1996-2006) landings for the MHI of approximately 243,000 pounds. The first quota-managed fishing season closed in mid-April 2008,

remaining open for just more than 6 months. However, after monitoring and data collection lags, it was realized that the quota was actually exceeded by approximately 10%. A revised stock assessment led to a delayed opening of the 2008-2009 fishing season in mid-November 2008, with a revised TAC of 241,000 pounds, a 35% increase in the TAC level relative to the 2007-2008 season. The fishery remained open until July 2009, representing an 18% increase in fishing days. However, as in 2008, when all the data were counted, the TAC was ultimately exceeded by approximately 8%. Despite consecutive overages in the initial years of the program, the TAC limit for fishing year 2009-2010 was set at 254,050 pounds, representing a moderate 2% increase. The catch was forecast to reach the TAC in late April and the fishery was closed on April 20, 2010. However, due to inclement weather that reduced catch rates in the last part of the season and difficulties with the new online catch reporting system, amongst other monitoring factors, approximately 18% of the quota was left unused for the 2009-2010 fishing season (Hawaii DAR, 2010). The most recent fishing year (2010-2011) with an equivalent TAC from the year prior, experienced the shortest season on record as the fishery closed on March 12, 2010, a 17% decline in fishing days from the year prior. Again, due to management uncertainty the final pounds landed, in the end, exceeded the quota by approximately 7%.

Numerous fishermen have attended public meetings across the State of Hawaii in recent years to express their concerns with the TAC management regime, and managing agencies have increased efforts to better engage the fishing community. This section provides insights into current attitudes towards TAC management of the Hawaii bottomfish fishery as expressed by our survey respondents. We will detail the fleet's attitudes about the necessity of the TAC, perceptions of recent TAC levels, and opinions about hypothetical future designs for the MHI bottomfish TAC program.

Necessity of TAC

The creation of a TAC limit for the Hawaii bottomfish fishery was a significant shift from traditional management of this fishery, and no other comparable fishery in Hawaii has been subject to a quota. Without the benefit of baseline information about attitudes prior to the survey, we can only describe current attitudes about the necessity of a quota (TAC) to maintain a sustainable bottomfish fishery. It has been 4 years since a TAC was instituted and while a majority of our survey respondents (54%) felt that a TAC was necessary to maintain a sustainable bottomfish fishery, about half of commercial highliners (51%) hold the opposite view (see Table 8). Opinions were fairly consistent across the State of Hawaii, although Oahu and Kauai fishermen were marginally more in agreement with a need for TAC management (58% and 57%, respectively) relative to Hawaii and Maui fishers (51% and 48%). In general, a respondent's view about the necessity of TAC management appeared to be inversely related to his reliance on the fishery, in that, as one may expect, a higher reliance was associated with lower support.

Annual TAC Levels

In nearly each of the past four fishing seasons, the bottomfish fishery has opened under a different TAC level, on a different date. It has closed early each year; we have yet to

experience a full fishing season under the TAC regime. As the TAC has increased over the past three seasons, we see an associated shift toward more positive views about the TAC level. However, there is still a considerable amount of uncertainty amongst fishermen, as *don't know* was the most common response to the question of whether TAC levels in recent years have been set *too high*, *about right* or *too low*. Approximately 33% of our sample responded with *don't know* for TAC levels in all three years. This would suggest a high degree of uncertainty in the fleet about what the appropriate TAC level should be. Uncertainty about TAC levels, or perhaps an unwillingness to express an opinion, appears to be directly related to level of participation in the fishery. Half of our noncommercial permit sample (50%) responded *don't know* for all years; the percentages were 34% for other commercial fishers and only 10% for fishery highliners. Respondents providing a *don't know* response to the query about TAC levels in all years were removed from the distributions presented in Table 9. Accordingly, the tabled results appropriately reflect views of respondents who expressed an opinion about TAC levels in at least one year.

Over time, across all fisher groups, the distribution of TAC level perceptions has shifted away from *too low*. In fact, while 56% of highliners considered the 2009 TAC to be *too low*, 34% indicated it is was *about right* (compared to 12% *about right* for the 2007 TAC level). On the other hand, while 40% of other commercial fishers considered the 2009 TAC to be *about right* and 28% thought it was *too low*, 24% considered the 2009 TAC to be *too high*. Additionally, 50% of noncommercial permit respondents stated that the 2009 TAC was *about right*, and 35% thought it was set *too high*. So it would appear that the current TAC level appears to be generally accepted in the fishing community, with the exception of commercial highliners. The current TAC level is consistent with historical pre-TAC catch levels[2].

Characteristics of a TAC Program

The current TAC for the bottomfish fishery applies to commercial catch of the Deep 7 species subgroup of the BMUS complex. Other management approaches may be more desirable. To elicit opinions on other approaches, we presented survey participants with a number of hypothetical alternatives to the existing TAC management structure. No detailed explanation was given for how these programs could be designed and implemented, as these are not actual proposed alternatives, but rather are representative options that could be explored in the future. A summary of respondent support[3] by alternative is presented in Figure 5. The alternatives include the status quo (Table 10 and Table 12), expanding the TAC to include all bottomfish management unit species (Table 11), separate commercial and recreational TACs (Table 13), island specific TACs (Table 14), and a TAC that covers multiple years (Table 15).

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[2] The quotas for fishing years 2009 and 2010 were 241,000 pounds and 254,050 pounds, respectively. To put these in historical context, the 10-year, pre-TAC management landings average (1996-2006) for MHI Deep 7 bottomfish was approximately 243,000 pounds.

[3] The axis in Figure 5 reflects net support as defined by the number of *oppose* (both strongly and somewhat) responses subtracted from the number of *support* (both strongly and somewhat) responses, giving an overall reflection of survey respondents' opinion.

As noted at the beginning of this Results section, we filtered out potential NO responses for this multipart question; NO responses were removed from the sample and are not reflected in the analysis (Tables 10-15), although the frequency of NO responses about hypothetical TAC program characteristics was minimal. Only 4% (n = 21) of our sample marked *don't know* for all program characteristics and 2% (n = 10) provided a *neutral* response for all items.

In addition, this question provided the option for the respondent to indicate that one does not support *any* form of TAC management. Specifically, after presented with the hypothetical alternatives, respondents could check a box that read 'I do not support <u>any</u> form of Total Allowable Catch management.' The degree of outright opposition to this form of management varied slightly by county as the percentage of fishermen in our sample who self-identified themselves opposed to *any* form of TAC management was 31% (n = 29) on Maui, 18% (n = 10) on Kauai, 11% (n = 23) on Oahu, and 9% (n = 12) on the island of Hawaii. However, it should be noted that many of these fishermen did offer varied opinions on many of the hypothetical alternative TAC programs. Reliance on the fishery served as an indicator of this sentiment as 25% (n = 12) of highliners in our respondent pool rejected <u>all</u> forms of TAC management compared to 15% (n = 60) of our other commercial marine license respondents and 5% (n = 2) of the noncommercial permit respondents.

TAC for Deep 7 only--The current TAC management regime is limited to an economically and culturally significant subgroup of BMUS known as the Deep 7. Nearly two-thirds (66%) of survey respondents, who were willing to elicit opinions about hypothetical alternative TAC programs, indicated support of a TAC program limited to Deep 7 bottomfish species compared to 19% who expressed opposition (Table 10).[4] This would suggest that many fishermen have accepted a Deep 7 TAC limit and would support the status quo. Support from commercial highliners (48%) was lower than other commercial fishers (67%) and noncommercial fishers (78%). Some variation across counties is seen, as 49% of Maui fishermen supported the Deep 7 TAC as compared to higher levels of support from Kauai (74%), Oahu (73%), and Hawaii (64%). Fishermen who target other BMUS species (not Deep 7) were supportive of a TAC limited to Deep 7 species (only 11% expressed opposition). Since a Deep 7 TAC does not directly affect these fishers' effort, it would be expected that this group would indicate less opposition to this type of management measure.

TAC for all bottomfish species--When offered an alternative to include all BMUS in a TAC limit, only 24% of survey respondents issued support for this management approach, and 37% indicated that they would *strongly oppose* this alternative with a total of 56% opposed (Table 11). Commercial highliners expressed very clear opposition to this option with 78% of survey responses not supportive, and among commercial fishermen reporting catch of less than 1000 pounds, 52% were opposed. We did not find

[4] Although, it should be noted, as a reminder, that an additional 15% (n = 74) do not support *any* form of TAC management. This would still suggest that a number of fishermen have accepted a Deep 7 TAC limit.

any differences across counties, between commercial or noncommercial fishermen, based on target species (Deep 7 versus other BMUS), or recent activity in the fishery. In short, a solid majority of all fishermen were opposed to this alternative.

TAC that only applies to commercial fishing--Despite the fact that most fishermen supported the current TAC program, as limited to Deep 7 species, we found that fishermen did not appear to be satisfied with the current structure of a TAC that applies only to commercial fishing (Table 12). While 38% of our sample supported a commercial-only TAC, 45% were opposed. Fishery highliners expressed the most opposition to this measure with 59% opposed; 23% were in support. Noncommercial permit holders expressed nearly the exact opposite opinion with 54% in support and 23% against. Oahu fishermen were the most supportive of a commercial-only TAC and Maui fishermen were the least supportive..Fishermen that target Deep 7 species expressed slightly more negative opinions compared to fishermen targeting other BMUS, and there was no difference between those who fished in the most recent season and those not recently active.

Separate TACs for commercial and recreational fishing--Expanding on the question above, a majority of our sample (54%) indicated support of separate TACs for commercial and recreational fishing (Table 13). Highliners supported this idea (44%) more than they opposed it (31%), and less-active commercial fishers supported this at 55% compared to 27% opposed. Noncommercial permit holders were very supportive, with 58% in support and only 16% opposed. The latter result is interesting, as a similar majority of noncommercial fishermen supported a TAC that only applies to commercial fishing. We did not find any substantial difference in opinion based on county, target species, or whether one was active in the most recent fishing season.

A separate TAC for each island--A management alternative that could account for spatial considerations of fish populations, habitat, and issues of market access would be an island-specific TAC allocation. Nearly half of the fishermen in our sample (49%) indicated support for a separate TAC for each island with only 27% opposed (Table 14). Fishery highliners were slightly more opposed (46%) to this measure than in favor (37%), as compared to 50% support for other commercial fishers. Noncommercial fishermen expressed very mixed opinions with a relatively even distribution across the spectrum including a high level of uncertainty with 26% saying that they *don't know* how they felt about this issue. The island of Hawaii had the highest level of support for this measure with 60% support and 18% opposed. Oahu and Kauai were similar with 55% and 54% support, whereas support from Maui was only 40%, with 43% opposed. Fishermen targeting Deep 7 (49%) as well as those active in the most recent fishing season (51%) generally supported this hypothetical alternative.

A TAC that covers multiple years--The last option proposed was a TAC that could cover multiple years. This option was included to address the fact that in each year of TAC implementation, actual catch has either exceeded or fallen short of the TAC (see Table 7). A multi-year TAC could enable roll-over of quota across some number of years, allowing for interannual variation. Approximately 41% of our sample indicated

opposition to a multiyear TAC with only 21% in support (Table 15). There were high levels of uncertainty related to this concept: 16% reported *don't know* as their opinion on this question, and an additional 23% were *neutral*. Fishermen that target Deep 7 species were more opposed to this idea (46%) compared to fishermen that target other BMUS (34%).

Opinions of Bottomfish Management Tools (other than TAC)

The last decade has seen a number of management tools applied to this fishery in an effort to address concerns of overfishing. Over the years, the State of Hawaii has favored spatial management tools (bottomfish restricted fishing areas (BFRAs)), while federal managers have implemented seasonal closures in conjunction with quota management. Both state and federal agencies have focused increasing attention on noncommercial management regulations (bag limits and permits). In our survey, fishermen were asked for their opinion on whether past management tools (BRFAs, summer closure, and noncommercial regulations) have been effective in promoting a sustainable bottomfish fishery in Hawaii. A summary of fleet perceptions can be found in Figure 6 and Tables 16-20. Figure 6 shows a measure of net effectiveness of each alternative bottomfish management tool, calculated as the number of respondent opinions indicating the tool was *effective* (extremely effective or somewhat effective) subtracted from the number indicating it was *ineffective* (extremely ineffective or somewhat ineffective).

In contrast to fisher responses on TAC program characteristics, the prevalence of NO responses to questions about other management tools was relatively high; 9% (n = 48) of respondents marked *don't know* for all management tools and 7% (n = 34) provided a *neutral* response for all items. This suggests a fair amount of uncertainty as to the effectiveness of previous and current management tools. As in other survey questions, we removed these responses from the analysis of management tools that follows (Tables 16-20).

Bottomfish Restricted Fishing Areas (BFRAs)

Many fishermen have the opinion that the State of Hawaii bottomfish restricted fishing areas have been ineffective in promoting a sustainable bottomfish fishery (see Table 16 and Table 17). Only 27% of our sample considered the original BFRAs to have been effective (48% ineffective), while 30% consider the new BFRAs to be effective in promoting a sustainable bottomfish fishery (45% ineffective). Deep 7 highliners held more negative views towards spatial management of the fishery compared to other groups, with only 15% and 17% perceiving the old and new BFRAs, respectively, as effective management tools. There was little difference in opinion across the State of Hawaii, although fishers from the island of Hawaii were the most accepting of the original and new BFRAs (35% and 36%, respectively) and Maui fishers were the least accepting at 20% and 27%. Likewise, a higher proportion of fishers that target Deep 7 species viewed spatial management measures as ineffective compared to fishers who target other BMUS.

Emergency Closure (Summer 2007)

An emergency 5-month closure for MHI Deep 7 bottomfish was put in place beginning in May of 2007 in a cooperative effort by both federal and state agencies to specifically address overfishing concerns and meet the Council's recommendation to reduce fishing mortality. As shown in Table 18, fishermen expressed mixed opinions on the effectiveness of the 2007 summer closure. Responses were nearly evenly distributed, with a net 4% difference favoring effective (37%) over ineffective (33%). Commercial marine license holders expressed varied opinions, although a majority of fishery highliners (55%) perceived the closure as ineffective. On the other hand, a sizable portion (36%) of the noncommercial permit holders expressed uncertainty about the effectiveness of the emergency closure by providing a *don't know* response.

Noncommercial Regulations

Increased attention in recent years has focused on noncommercial bottomfish fishing. In 1998, the State of Hawaii instituted noncommercial bag limit restrictions for Deep 7 species. Additionally, in 2007, a new federal regulation required that noncommercial fishermen who bottomfish in federal waters purchase a noncommercial bottomfish permit and comply with associated reporting requirements and must stop fishing when the TAC is reached. As shown in Table 19 and Table 20, our survey sample expressed marginal support for recent noncommercial regulations. While 43% of our survey population considered bag limits to be an effective management tool, 35% felt they were ineffective; and only 37% agreed that noncommercial permits helped promote a sustainable bottomfish fishery (35% disagreed). We did not find any fundamental differences in opinion across the State of Hawaii or between other categories of fishermen, although interestingly, fishery highliners expressed relatively high levels of uncertainty (25%) in regards to the effectiveness of noncommercial permits.

Current Fishery Conditions

In this section, we detail perceptions of current fishery conditions. This is useful to explore whether the current TAC regime is creating the negative outcomes typically associated with quota-based management. One negative outcome is a "race to fish," where fishers strive to catch as much as possible as early in the season before the fishery reaches the TAC and closes. The "race to fish" creates loss of opportunity for fishing (because the season is truncated), a potential increase in capacity and crowding in the fishery as fishery effort builds and tends to concentrate early in the season, fishing in unsafe weather conditions as fishers feel compelled to go out on poor-weather days so as not to miss fishing opportunity, and fluctuation in fish prices (prices fall as more catch is available early in the season, then rise after the fishery closes and supply drops). These negative outcomes have occurred in numerous fisheries as they transition from open access management regimes to limited access regimes (Bonzon, et al., 2010). As mentioned previously, over the past three fishing seasons, quota limits in the Hawaii bottomfish fishery have approached and slightly exceeded recent historical open access

catch levels[5]. While we have yet to experience anything that would resemble a "derby" fishery, the March 12, 2011 closure of the 2010-2011 fishing season, with a quota equivalent to the one in the prior season, resulted in a 17% decline in fishing days (see Table 7), and the shortest fishing season to date. There appears to be some evidence of a race to fish, as we have yet to experience a full fishing season since the TAC was introduced, despite TAC levels exceeding historical pre-TAC catch levels.

Existence of a Race to Fish

Fishermen did not register very strong opinions when asked about a potential "race to fish" in this fishery (see Table 21). Although 41% of our commercial survey sample indicated agreement with the need to 'race' to catch bottomfish before the TAC is reached, this is roughly equal to the percentage that stated *neutral* or said that they *don't know* (Table 21). The majority (62%) of commercial highliners felt a "race to fish". Oahu fishermen expressed the lowest level of agreement with a "race to fish" mentality at 34%; higher agreement was expressed by fishermen on Maui at 42%, Hawaii at 43%, and Kauai at 51%. Deep 7 fishermen (49%) and those active in the fishery in the past fishing season (42%) identified more with the "race to fish" compared with those targeting other BMUS (25%) and those inactive in the most recent fishing season (29%).

Loss of fishing opportunity--Coupled with the race to fish question was an inquiry as to whether fishermen felt that they fish bottomfish less than they would like because of the TAC limit (see Table 22). Approximately 43% agreed with this statement while 28% disagreed and 22% were neutral. Those targeting Deep 7, commercial highliners and those active in the most recent fishing season were more likely to agree with this statement (50%, 49% and 45%, respectively) relative to other BMUS fishermen and those not recently active (28% and 32%).

Capacity and crowding--We asked fishermen their opinions about current capacity levels in the fishery by having them respond to the question: "I feel that there are too many boats catching bottomfish" (see Table 23). Perceptions on the amount of boats active in the fishery was mixed across our sample population with a fairly even distribution across the opinion spectrum; 31% agreed, 27% were neutral, 27% disagreed, and 14% said they don't know. This indicates strong heterogeneity in opinion across the fleet. Highliners marginally agreed more (36%) than other commercial fishers (31%) and noncommercial fishers (24%); although there were no sizable differences in opinion across counties, fishing avidity, or motivation, as *neutral* was the most common response.

While the fishermen's responses did not seem to suggest a great concern about overcapacity, data on participation indicate that capacity in the fishery has been building in recent years. During the 2009-2010 fishing season, approximately 536 commercially licensed fishermen reported catch of Deep 7 species, and 392 (75%) fishers sold Deep 7 species (State of Hawaii, 2010). These figures represent an increase of nearly 61% in the

[5] The quotas for fishing years 2009 and 2010 were 241,000 pounds and 254,050 pounds, respectively. To put these in historical context, the 10-year, pre-TAC management landings average (1996-2006) for MHI Deep 7 bottomfish was approximately 243,000 pounds.

number of fishers reporting Deep 7 catch and a 32% increase in fishers selling Deep 7 bottomfish relative to 2006 (prior to TAC management). Additionally, if one compares the 2009-2010 season to a 5-year average (2003-2007), the number of fishermen reporting Deep 7 catch has increased 45% and the number of fishers selling Deep 7 catch has increased 18% (State of Hawaii, 2010).

Actual or perceived crowding in the fishery may not necessarily be a result of the TAC. Historically, commercial participation in the bottomfish fishery has been cyclical, with effort increases correlated with downturns in the economy. Additionally, in times of lower catches due to natural stock fluctuations, 'marginal' fishers tend to leave the fishery.

Recent increases in participation in the bottomfish fishery may also be a result of the recession felt in the local economy over the past three years. In addition, some growth in the commercial fishing sector has likely resulted from the recent federal regulation of noncommercial bottomfish fishing. Mandated permits, reporting requirements, bag limits, and associated permit fee ($41) for noncommercial fishers has made the purchase of a commercial marine license ($50 fee, no bag limits, and option to sell catch) increasingly attractive. Additionally, the State of Hawaii, in collaboration with NOAA Fisheries, has increased resources towards outreach to the fishing community on the importance of compliance with reporting requirements.

Safety at sea--Associated with the race to fish as an effect of TAC management is the possible tendency of fishers to pay less heed to safety at sea. Again, our sample was rather evenly divided when asked whether they find themselves fishing in less safe sea conditions than they would like to, with 40% in agreement and 39% in disagreement (see Table 24). There were stark differences by avidity as a majority of fishery highliners (59%) agreed whereas a majority of noncommercial fishers (66%) disagreed. Other commercial fishers were evenly split with 39% in agreement and 39% in disagreement.

However, when one looks at demographics of our survey respondents, there are clear indications that more experienced participants in the fishery are less apt to take risks in marginal sea and weather conditions. Whereas, 30% of fishermen over 55 years reported fishing in less safe conditions than they would prefer, nearly 50% of younger fishermen, aged 25-44 expressed concerns of safety at sea by noting that they fish in less safe sea conditions than they would prefer.

Market Conditions

The survey also sought to understand current market conditions in the fishery, as perceived by fishermen. Many fishermen feel that the price they receive for bottomfish is about the same as before TAC management (Table 25). For fishermen that have sold bottomfish in the past 12 months, 50% feel that prices have held constant in recent years under TAC management, whereas 21% indicated that they receive lower prices under TAC management. Only 6% responded that they are receiving higher prices than before.

Any analysis of prices with respect to the TAC management regime is confounded by high fluctuations in fresh snapper and grouper import levels contributing to total market supply as well as macroeconomic conditions experienced over the past 3 years, which also affect domestic prices (Hospital and Pan, 2009). An exploration of market data suggests that real prices for bottomfish have generally trended downwards since the institution of TAC management. However, as stated above, only about 21% of bottomfish fishermen consider their prices to be lower than prior to TAC management. A larger percentage of fishermen that target other BMUS reported higher prices, possibly because of increased demand for substitute species during closure periods. However, there is greater uncertainty from this group as approximately 30% responded that they *don't know* about current prices relative to the period before TAC management. With the exception of commercial highliners (6%), the high percentage of *don't know* responses for this question can likely be attributed to the social and cultural importance of bottomfish fishing in that many 'commercial' bottomfish fishermen do not necessarily seek profit as a motivation for targeting bottomfish.

Perceptions of Catch Share Management

The repeated failure of many traditional fishery management regimes to ensure biological and economically sustainable fisheries has pushed managing agencies to explore alternative approaches to fisheries management (NOAA, 2010; Ronzon, et al., 2010). While standard fishery management programs consisting primarily of input controls (gear restrictions, seasonal and spatial closures) have been moderately successful at controlling fishing mortality, they have fared less well in maintaining economic efficiency and socially resilient fisheries. Over the past two decades, numerous fisheries worldwide have migrated to some form of rights-based fishery management (Chu, 2009; Costello et al., 2008). Such management typically involves the institution of individual fishing quotas that can be allocated as shares across the spectrum of stakeholder groups including individuals, sectors, cooperatives, communities and/or processors. In theory, fishing privileges and exclusive access to a portion of the catch give fishermen an incentive for economic efficiency and prudent stewardship of the resource (Pew, 2009; Sanchirico and Wilen, 2007).

In the United States, the suite of rights-based management approaches that have been implemented globally has been recast under the umbrella term "catch share" management. The National Oceanic and Atmospheric Administration (NOAA) has released a national catch share policy, encouraging the consideration and adoption of catch shares, where applicable, with the goal of achieving long-term ecological and economic sustainability of the nation's fishery resources and fishing communities (NOAA, 2010). Both here and in other countries, catch shares have shown they can effectively achieve annual catch limits (Griffith, 2008; Essington, 2010), reduce the negative biological and economic impacts of the race for fish, and when properly designed can eliminate overfishing and result in safer and more profitable fisheries (Beddington, et al., 2007; Gomez-Lobo et al., 2007).

However, catch shares have the potential to lead to unintended consequences in fisheries that lack monitoring capacities, enforcement, or a hard TAC; keep poor or unreliable catch data; and target fish species with widely fluctuating populations (NOAA, 2010). In these situations, one can expect incentives for high grading, underreporting of catch, and (in multispecies fisheries) targeting on commercial species not governed by the quota system (NOAA, 2010). As a result, catch shares by themselves may not be sufficient to reach ecosystem-based management goals (Gibbs, 2010; Smith, 2009). The allocation of a quota to individual fishermen, communities or sectors is often controversial, polarizing public debate and pitting prospective "winners" of quota ownership against "losers (Tamm, 2010). Fleet consolidation is the most common result of any rights-based management program and the risk of displacing small scale fishermen and the potential for communities, crew, and prospective new entrants to be marginalized is possible (Carothers et al., 2010; Lowe and Carothers, 2008; National Academy of Sciences, 1999).

To address the recent NOAA catch share policy, the survey was designed to include questions about potential catch share management for the Hawaii bottomfish fishery. Fishermen were asked how familiar they are with catch share management systems; their level of support for adopting a catch share program, and what characteristics of a catch share program would be acceptable.

Familiarity with Catch Share Systems

For a catch program to be successful, stakeholders must be amenable to such a change. To this end, during the winter of 2010, the Western Pacific Regional Fishery Management Council (Council) travelled across the State of Hawaii holding public meetings to provide information to the fishing community and general public on catch share programs. In our survey questionnaire, when posed the question, "how familiar are you with catch share systems," a majority (71%) of all fishermen reported to have no knowledge of catch share programs (see Table 26). We found some evidence of the Council's outreach efforts among highliners, as 55% of them expressed at least some familiarity with catch share management. However, this group seems to be the exception, as 73% of other commercial fishermen and 79% of noncommercial fishermen indicated no knowledge of catch share programs.

Support for Catch Shares Management

The analysis of support for the establishment of catch share management is somewhat confounded by the high levels of uncertainty and unfamiliarity with catch shares management. Nevertheless, many fishermen had expressed opposition to the potential for catch share management. If we strictly consider fishermen who claimed that they were familiar with catch shares, we still find high levels of opposition. As shown in Table 27, a majority of fishermen *extremely familiar* with catch share management were opposed (59%) to catch shares for the bottomfish fishery. Similarly, a majority of fishermen *somewhat familiar* with catch shares were opposed (55%).

Catch Share Program Characteristics

To determine support for potential catch share programs with different design characteristics, we posed a number of hypothetical alternatives and recorded responses of fishermen to common catch share program elements.

There were high levels of NO responses to questions about catch share program characteristics, further indication of uncertainty towards this form of management or an unwillingness to provide an opinion: 16% (n = 84) of our sample marked *don't know* for all catch share program options and 3% (n = 13) provided a *neutral* response for all items. We again filtered out potential NO responses for this multi-attribute question and these NO responses are not reflected in the analysis that follows (Tables 28-33).

Fishermen expressed fairly strong opposition to most of the options presented, with a large segment of our survey sample ultimately indicating that they were opposed to potential catch share programs. Approximately 40% (n = 206) of our survey population noted that they do not support *any* form of catch share management by checking a box that stated 'I do not support <u>any</u> form of catch share management.' However, it should be noted that many of these fishermen did elicit varied opinions on many of the hypothetical catch share elements.

The degree of outright opposition to this form of management was consistently high across counties as 55% (n = 97) of fishermen were opposed on Oahu, 50% (n = 39) on Maui, and 42% on both Kauai (n = 22) and Hawaii (n = 47). Reliance on the fishery had no bearing, as the negative opinion was expressed nearly across the population of commercial fishers. Interestingly, 48% (n = 20) of noncommercial fishermen rejected *any* form of catch share management, compared to 39% (n = 186) of commercial fishermen. Additionally, 39% (n = 17) of 'crew' survey respondents (do not own the vessel they fish bottomfish on) were opposed to *any* form of catch share management.

Equal share quota--The program option garnering the most support, from approximately 39% of fishermen (offering opinions), was for each individual fisherman to receive an equal share of quota (Table 28). However, 43% of our sample opposed incorporating this element into a potential catch share program. Dividing the annual TAC limit equally amongst all active fishermen would clearly be the most rudimentary allocation scheme, but without a doubt would create clear "winners" and "losers," with the potential of substantial loses for fishery highliners. Nearly two-thirds of highliners in our sample (66%) were *strongly opposed* to this concept. Response from the fishermen that would potentially stand to "win" under this alternative (less avid commercial fishers) was mixed, with 43% supporting and 40% opposed. Interestingly, 'crew' respondents were opposed to equal shares at nearly the same rate as fishery highliners (65%). Noncommercial permit holders seemed to recognize the potential gain to them under this potential alternative; 39% of them were in support compared to 26% opposed. Few differences in opinions across counties and target species arose.

Individual fishing quota – based on catch history--We also asked respondents their opinion about a catch share program design that would allocate individual fishing quotas based on catch history. The majority of our sample (55%) was opposed to this as a potential future allocation scheme, and opposition was consistent across all counties, avidity levels and target species (see Table 29). An important group to consider for this alternative is bottomfish 'crew'. Under current State of Hawaii reporting requirements, in an effort to avoid double-counting, crew members are not required to file catch reports. Therefore, while these individuals have been following the rules, they would stand to lose out under any allocation based on catch history. Recognizing this problem, a majority (63%) of survey respondents categorized as 'crew' opposed this alternative. Additionally, only 9% of noncommercial permit holders supported this option. Like the crew members on commercial bottomfish vessels, noncommercial fishermen have never had to report catch (until 2007 reporting requirements associated with the federal bottomfish permit) and, thus, there is likely not an adequate history on which to derive an allocation for them.

Individual transferable quota – based on catch history--In addition to allocating an individual quota based on catch history, many fisheries have then permitted one's quota to be transferable, allowing individuals to reallocate quota based on market value. This in essence allows the market, rather than the government to efficiently allocate quota (after an initial allocation decision is made). This alternative received even lower support compared to the aforementioned options among our sample population, as only 17% of fishermen indicated a degree of support (see Table 30). The majority of fishermen for all counties, avidity levels, and target species indicated opposition to this element of a potential catch share design.

Fishing community--Some catch share designs have allocated a portion of quota to individual fishing communities (Bonzon, 2010). However, only 14% of our sample supported an allocation to fishing communities whereas 58% were opposed. More than three-quarters of our highliner sample (79%) were opposed to this option. Fishermen also expressed indifference with 20% of our sample responding with *neutral* and 11% indicating that they *did not know* (see Table 31). One possible rationale for the high number of *neutral* and *did not know* responses is that the State of Hawaii lacks well-defined and established fishing communities, making implementation of a catch share element of this nature problematic at best.

Fishing cooperative or hui--Another potential catch share program design approach is to allocate quota to fishing cooperatives. There is little history of fishing cooperatives in Hawaii, and this fact may explain respondents' opposition to this element. Approximately 69% of fishermen were opposed to this option, compared to a slim 6% expressing support (see Table 32). Highliners were nearly unanimously opposed (92%) to this allocation approach, while the overwhelming majority of fishermen across counties, avidity levels, and target species opposed this proposal.

Portion reserved for new entrants--One element that must be addressed in the design of any catch share program is a system for allocating shares to new entrants into the fishery.

Fishermen were asked whether they supported a portion of quota reserved for new entrants, and about half (51%) of our sample were opposed to this alternative with only 13% indicating a level of support (see Table 33). There were relatively high levels of indifference and uncertainty with respect to this alternative as *neutral* and *don't know* responses were 20% and 16%, respectively. We found no major differences across counties, avidity levels, and target species.

COMMENTS FROM FISHERMEN

The survey questionnaire provided fishermen the opportunity to expand on their responses to attitudinal questions by including three open-ended sections prefaced with the text, "if you wish to add additional comments to clarify your response you may do so here." Additionally, the final page of the survey questionnaire was left blank asking for "suggestions for future management or topics needing further study." Many fishermen took these opportunities to provide direct feedback to managing agencies. This section provides details of the survey comments and their prevalence (Table 34). A report of raw survey comments loosely organized by topic can be found in the Appendix to this report.

Comments on Previous Management Tools

After rating the effectiveness of previous management tools in promoting a sustainable bottomfish fishery, approximately 23% of survey respondents added additional comments in the space provided. The frequency of comments varied in relation to respondents' reliance on the fishery. Nearly 35% of fishery highliners commented on previous management tools, compared to a mere 7% of noncommercial permit fishermen. As shown in the appendix, the bulk of comments addressed the BFRAs, and a considerable majority of these were negative. A number of fishermen were concerned over a lack of scientific evidence that BRFAs enhance bottomfish populations and science to inform where and how large the BRFAs should be. Respondents also questioned why there are both TAC management and BFRAs, and expressed frustration about a lack of enforcement of the BFRAs. Fishermen also commented on noncommercial regulations with mixed reactions to their effectiveness.

Comments on TAC Management

Approximately 21% of our survey sample provided comments in response to our survey questions regarding perceptions of TAC management, and the majority of comments were in opposition or in some way critical of the existing TAC regime. A very small percentage of comments were in complete support of TAC management, and a number expressed conditional support for a quota system. Some fishermen felt the TAC program should give more consideration to the smaller scale fishermen. Many commenters were in favor of island-specific TACs, in accordance to the aggregate response from the full respondent pool presented in Table 18.

Comments on Catch Share Program Elements

The prevalence of comments on questions related to catch share program characteristics (24% of respondents provided comments) approximated previous open-ended sections. However, fishery highliners were especially vocal as 51% commented on catch shares. The comments were mostly in opposition to the various catch share program elements; although there were many comments in regards to uncertainty about the concept of catch share management. A number of fishermen expressed support for TAC management instead of catch shares. Additionally, while a dozen or so fishers indicated support for an individual quota to allow them flexibility on when they can fish, this sentiment was overshadowed by concerns associated with privatization of public fishery resources through catch share programs.

Suggestions for Future Management or Topics that Need Further Study

A clear finding from this study is that fishermen want to be involved in the management process and have a multitude of suggestions for how fisheries should be managed and topics they feel need further study. Approximately 29% of survey respondents took the time to provide additional comments and suggestions on the survey form. Nearly forty pages of comments and suggestions indicate the commitment fishermen have to the successful management of the bottomfish fishery. Along with their completed survey forms, several fishermen provided letters detailing comments and concerns, some extending up to five typed pages. The responses on future management and topics for research are too diverse to be summarized here, but are loosely organized by topic in the appendix to this document.

CONCLUSION

This paper has examined current attitudes and perceptions of the bottomfish fleet towards management agencies, past and existing management tools, and hypothetical future management alternatives. Specifically, the paper provides results of a mail survey fielded to 1012 bottomfish fishermen in Hawaii that measured their support for specific management initiatives to improve sustainability of the fishery.

Fishermen expressed their dissatisfaction with managing agencies, with only 25% of fishermen indicating satisfaction with federal management of the fishery and 24% indicating satisfaction with state management. Fishermen also expressed dissatisfaction with past management approaches. The majority of fishermen do not view past management tools as being effective in promoting a sustainable bottomfish fishery; however, a large portion of fishermen appear to support the existing TAC management program. In considering alternative specifications of the TAC limit, fishermen were marginally supportive of separate commercial and recreational quotas as well as island-specific TACs. Across all categories of Hawaii bottomfish fishermen, survey respondents strongly opposed the potential introduction of a catch share system for the bottomfish fishery.

Based on the number of voluntary comments provided in the survey, it is clear that fishermen want to be involved in management of the bottomfish fishery and have numerous suggestions for how fisheries should be managed and topics they feel need further study. Managing agencies need to continue efforts to engage the bottomfish community to improve relations which will likely contribute to successful management of the fishery into the future.

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TABLES

Table 1
Survey population and response rates

County	Commercial Population	Complete Surveys	Commercial Response (%)	Noncommercial Population	Complete Surveys	Noncommercial Response (%)	Total Complete	Total Response (%)
Kauai	112	59	52.7	7	2	28.6	61	51.3
Oahu	300	189	63.0	68	30	44.1	219	59.5
Maui	187	92	49.2	9	6	66.7	98	50.0
Hawaii	314	135	43.0	12	3	25.0	138	42.3
Total fleet	916*	478**	52.2	96	41	42.7	519**	51.3

* - In addition to Hawaii residents, there were three respondents with mainland US addresses making our commercial sample equal to 916.

** - We received two completed surveys from mainland respondents and one that county of residence could not be identified making our commercial complete total equal to 478 thus making the total complete total equal to 519.

Table 2

Survey population and response rates: Fishermen active in 2009-2010 fishing season

County	Active* BMUS	Complete Surveys	Active BMUS response (%)	Active** Deep 7	Complete Surveys	Active Deep 7 Response (%)	Valid^ Non-commercial	Complete Surveys	Valid Non-Commercial Response (%)
Kauai	101	55	54.5	62	40	64.5	1	0	0.0
Oahu	268	161	60.1	171	111	64.9	46	23	50.0
Maui	160	88	55.0	111	67	60.4	6	3	50.0
Hawaii	249	131	52.6	192	106	55.2	3	2	66.7
Total fleet#	781	437	55.9	536	324	60.4	56	28	50.0

* - Commercial marine license (CML) population

** - Deep 7 fishermen are a subset of Bottomfish Management Unit Species (BMUS)

^ - Noncommercial permit valid as of April 2009

- Additionally, there were three respondents with mainland US addresses of which two completed surveys

Table 3

Percentage distribution of survey population and completed surveys

County	Commercial Population	Survey Respondents	Noncommercial Population	Survey Respondents	Active Deep 7 Population	Survey Respondents	Valid Noncommercial Population	Survey Respondents
Kauai	12.3	12.4	7.3	4.9	11.6	12.3	1.7	0.0
Oahu	32.9	39.7	70.8	73.2	31.9	34.3	82.1	82.1
Maui	20.5	19.3	9.4	14.6	20.7	20.7	10.7	10.7
Hawaii	34.4	28.4	12.5	7.3	35.8	32.7	5.3	7.1
Total fleet	100	100	100	100	100	100	100	100

Table 4

Distribution of Deep 7 fleet landings in past 12 months

Deep 7 Pounds Caught (lb)	Commercial Population (%)	Survey Respondents (%)
0 – 50 lb	27.5	26.8
51 – 100 lb	11.8	11.6
101 – 500 lb	34.1	35.5
501 – 1,000 lb	12.6	11.6
1001 – 2,500 lb	9.0	8.4
Greater than 2,500 lb	5.0	6.1

source: State of Hawaii Fisher Reporting System (April 2009 – April 2010)

Table 5

Distribution percentage of Deep 7 fleet landings, by county in past 12 months

Deep 7 Pounds Caught (lb)	Kauai	Survey Respondents	Oahu	Survey Respondents	Maui	Survey Respondents	Hawaii	Survey Respondents
0 – 50	30.4	34.2	28.8	27.1	14.4	11.1	33.7	34.0
51 – 100	12.5	10.5	14.1	14.0	8.7	7.9	10.9	12.0
101 – 500	42.9	36.8	34.4	37.4	27.9	28.6	34.9	37.0
501 – 1000	8.9	10.5	12.3	9.3	18.3	19.0	10.9	10.0
1001 – 2500	1.8	2.6	7.4	7.5	20.2	19.0	6.3	5.0
Greater than 2500	3.6	5.3	3.1	4.7	10.6	14.3	3.4	2.0

source: State of Hawaii Fisher Reporting System (April 2009 – April 2010)

Table 6[6]

Survey Responses: "How satisfied are you with bottomfish management agencies"

Percentage of Responses[n*]	Strongly Satisfied (%)		Somewhat Satisfied (%)		Neutral (%)		Somewhat Dissatisfied (%)		Strongly Dissatisfied (%)		Don't Know (%)	
	Federal	State	Federal	State	Federal	State	Federal	State	Federal	State	Federal	State
Full Sample [510/505]	**4**	**4**	**21**	**20**	**21**	**19**	**21**	**22**	**20**	**25**	**13**	**9**
by County												
Kauai [60/59]	2	2	22	20	18	19	22	27	20	25	17	7
Oahu [218/216]	4	1	22	19	19	17	22	24	17	28	15	12
Maui [96/96]	7	6	13	17	21	20	24	23	27	29	8	5
Hawaii [133/131]	4	7	23	24	25	24	17	18	18	18	13	9
by Classification												
Commercial [468/463]	4	4	19	19	21	20	20	21	21	25	14	10
Highliner [48/48]	8	2	15	4	6	15	33	27	29	50	8	2
< 1000 lb [420/415]	4	4	20	21	23	20	19	21	20	23	15	10
Non-Commercial [42/42]	2	0	40	29	14	17	31	31	5	17	7	7
by Target												
Deep 7 [292/291]	3	3	22	19	17	18	21	22	25	32	12	7
Other BMUS [127/125]	6	5	24	26	25	21	19	22	13	18	13	9
by Fished in recent season (since September 2009)												
Yes [408/406]	4	4	22	20	20	20	22	23	20	27	11	6
No [102/99]	4	4	19	20	23	17	17	19	17	18	22	22

* - the sample size [n] reflects [Federal/State]

[6] Please note, due to rounding, all rows in Tables 6-34 may not add up to exactly 100%

Table 7

Summary of MHI bottomfish TAC management

Fishing Year	TAC (pounds)	Open Date	Close Date	Final Landing (pounds)	Overage/ Underage (%)	Fishing Days
2006-2007	n/a	n/a	5/15/2007	n/a	n/a	227
2007-2008	178,000	10/1/2007	4/16/2008	196,147	+ 10	198
2008-2009	241,000	11/15/2008	7/6/2009	259,149	+ 8	233
2009-2010	254,050	9/1/2009	4/20/2010	208,412	- 18	232
2010-2011	254,050	9/1/2010	3/12/2010	270,880	+ 7	192

Table 8

Survey Responses: "A total allowable catch (TAC) was needed to maintain a sustainable bottomfish fishery?"

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [518]	**24**	**30**	**14**	**12**	**15**	**5**
by County						
Kauai [61]	23	34	13	15	12	3
Oahu [219]	24	34	13	10	12	7
Maui [97]	26	22	12	13	25	2
Hawaii [138]	21	30	16	14	14	4
by Classification						
Commercial [477]	23	30	13	13	16	5
Highliner [49]	8	29	12	24	27	0
< 1000 lb [428]	25	31	13	11	15	5
Noncommercial [41]	34	34	20	7	0	5
by Target						
Deep 7 [297]	23	32	11	13	17	4
Other BMUS [127]	28	31	14	7	14	5
by Fished in recent season (since September 2009)						
Yes [416]	24	33	11	13	16	3
No [102]	25	22	24	11	9	11

Table 9

Survey Responses: "TAC levels have been different in each of the last three years – do you feel the TAC level in each year was set…too high, about right, or too low?"

Percentage of Responses [n]	Too High (%)	About Right (%)	Too Low (%)	Don't Know (%)
Full Sample				
2007 (178,000 lb) [322]	11	31	54	3
2008 (241,000 lb) [311]	18	38	40	4
2009 (254,050 lb) [321]	22	40	31	7
by Classification				
Commercial				
Highliner				
2007 [41]	2	12	83	2
2008 [41]	5	29	63	2
2009 [41]	5	34	56	5
< 1000 lb				
2007 [261]	12	33	52	3
2008 [250]	19	39	38	4
2009 [260]	24	40	28	7
Noncommercial				
2007 [20]	20	45	25	10
2008 [20]	35	45	10	10
2009 [20]	35	50	15	0
by Target				
Deep 7				
2007 [209]	10	26	63	1
2008 [204]	16	35	45	4
2009 [209]	22	36	36	6
Other BMUS				
2007 [74]	16	39	41	4
2008 [70]	26	37	31	6
2009 [70]	26	47	21	6
by Fished in recent season (since September 2009)				
Yes				
2007 [274]	10	32	55	3
2008 [268]	18	37	41	4
2009 [274]	21	40	32	7
No				
2007 [48]	17	31	46	6
2008 [43]	23	44	33	0
2009 [47]	28	40	26	6

Table 10

Survey Responses: "What characteristics of a total allowable catch (TAC) program would you support?" – Deep 7 TAC only

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [436]	**35**	**31**	**13**	**10**	**9**	**2**
by County						
Kauai [50]	30	44	6	10	10	0
Oahu [194]	37	36	13	8	6	1
Maui [78]	27	22	12	14	22	4
Hawaii [112]	38	26	17	11	4	4
by Classification						
Commercial [399]	34	31	14	10	9	3
Highliner [42]	17	31	14	21	17	0
< 1000 lb [357]	36	31	13	8	8	3
Noncommercial [37]	43	35	5	14	3	0
by Target						
Deep 7 [254]	34	31	13	10	11	2
Other BMUS [109]	39	34	11	6	5	5
by Fished in recent season (since September 2009)						
Yes [354]	36	31	12	10	10	2
No [82]	28	35	17	12	5	2

Table 11

Survey Responses: "What characteristics of a total allowable catch (TAC) program would you support?" – TAC for all bottomfish species

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [427]	**11**	**13**	**19**	**19**	**37**	**2**
by County						
Kauai [50]	10	16	10	18	44	2
Oahu [189]	8	15	20	20	35	2
Maui [78]	14	10	14	14	46	1
Hawaii [107]	11	11	24	22	29	3
by Classification						
Commercial [392]	10	14	19	19	36	2
Highliner [41]	7	2	12	22	56	0
< 1000 lb [351]	11	15	19	18	34	2
Noncommercial [35]	11	9	17	23	40	0
by Target						
Deep 7 [251]	10	11	21	19	37	2
Other BMUS [106]	13	12	15	19	40	1
by Fished in recent season (since September 2009)						
Yes [351]	11	13	20	19	36	1
No [76]	8	16	12	19	41	4

Table 12

Survey Responses: "What characteristics of a total allowable catch (TAC) program would you support?" – Commercial TAC only

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [417]	**22**	**16**	**13**	**15**	**30**	**3**
by County						
Kauai [48]	19	13	13	13	39	6
Oahu [188]	25	19	16	16	22	2
Maui [76]	18	14	9	14	42	1
Hawaii [103]	22	16	11	15	33	4
by Classification						
Commercial [382]	21	16	13	15	33	3
Highliner [39]	8	15	18	23	36	0
< 1000 lb [343]	22	16	12	14	32	3
Noncommercial [35]	37	17	17	17	6	6
by Target						
Deep 7 [245]	19	14	13	16	36	2
Other BMUS [105]	27	19	11	14	26	3
by Fished in recent season (since September 2009)						
Yes [344]	22	17	13	15	30	3
No [73]	25	14	15	12	32	3

Table 13

Survey Responses: "What characteristics of a total allowable catch (TAC) program would you support?" – A separate commercial and recreational TAC

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [427]	**34**	**20**	**15**	**10**	**16**	**5**
by County						
Kauai [51]	35	24	10	6	16	9
Oahu [189]	34	22	13	13	14	3
Maui [76]	26	25	17	12	18	3
Hawaii [107]	39	10	21	7	18	6
by Classification						
Commercial [391]	33	21	15	10	17	4
Highliner [39]	26	18	21	13	18	5
< 1000 lb [352]	34	21	15	10	17	4
Noncommercial [36]	47	11	14	8	8	11
by Target						
Deep 7 [248]	33	20	15	9	20	4
Other BMUS [104]	32	18	14	13	17	5
by Fished in recent season (since September 2009)						
Yes [350]	33	19	16	10	17	5
No [77]	38	23	13	10	10	5

Table 14

Survey Responses: "What characteristics of a total allowable catch (TAC) program would you support?" – Island specific TAC

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [427]	**29**	**20**	**15**	**8**	**19**	**8**
by County						
Kauai [50]	38	16	10	6	14	16
Oahu [189]	23	22	17	8	20	10
Maui [76]	20	20	13	14	29	4
Hawaii [110]	42	18	16	5	13	5
by Classification						
Commercial [392]	30	20	16	8	19	7
Highliner [41]	22	15	12	12	34	5
< 1000 lb [351]	31	21	16	7	18	7
Noncommercial [35]	20	14	11	14	14	26
by Target						
Deep 7 [249]	31	18	12	10	22	6
Other BMUS [104]	25	23	21	6	15	10
by Fished in recent season (since September 2009)						
Yes [350]	30	21	14	9	19	7
No [77]	25	16	22	6	18	13

Table 15

Survey Responses: "What characteristics of a total allowable catch (TAC) program would you support?" – A TAC that covers multiple years

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [414]	**9**	**12**	**23**	**14**	**27**	**16**
by County						
Kauai [48]	13	10	19	10	20	27
Oahu [187]	5	10	24	13	29	18
Maui [72]	10	17	26	13	28	7
Hawaii [105]	13	11	22	16	23	14
by Classification						
Commercial [380]	9	12	23	14	27	16
Highliner [39]	3	8	31	10	33	15
< 1000 lb [341]	10	12	22	14	26	16
Noncommercial [34]	9	12	24	9	21	26
by Target						
Deep 7 [241]	7	10	21	14	32	16
Other BMUS [102]	9	16	23	13	21	20
by Fished in recent season (since September 2009)						
Yes [339]	9	13	23	13	27	17
No [75]	11	7	24	17	27	15

Table 16

Survey Responses: "What is your opinion of previous and current management actions on promoting a sustainable bottomfish fishery in Hawaii" – Original Bottomfish Restricted Fishing Areas (BFRAs)

Percentage of Responses [n]	Extremely Effective (%)	Somewhat Effective (%)	Neutral (%)	Somewhat Ineffective (%)	Not Effective at all (%)	Don't Know (%)
Full Sample [419]	**4**	**23**	**14**	**16**	**32**	**11**
by County						
Kauai [44]	2	23	18	11	34	11
Oahu [189]	2	23	15	17	32	11
Maui [80]	5	15	11	18	39	13
Hawaii [103]	8	27	13	15	27	11
by Classification						
Commercial [385]	4	23	15	15	32	10
Highliner [45]	4	11	2	18	56	9
< 1000 lb [340]	4	24	17	15	29	11
Noncommercial [34]	3	26	3	24	26	18
by Target						
Deep 7 [263]	3	21	10	19	37	10
Other BMUS [92]	8	29	14	12	26	11
by Fished in recent season (since September 2009)						
Yes [347]	4	24	13	16	33	10
No [72]	3	19	21	14	26	17

Table 17

Survey Responses: "What is your opinion of previous and current management actions on promoting a sustainable bottomfish fishery in Hawaii" – New Bottomfish Restricted Fishing Areas (BFRAs)

Percentage of Responses [n]	Extremely Effective (%)	Somewhat Effective (%)	Neutral (%)	Somewhat Ineffective (%)	Not Effective at all (%)	Don't Know (%)
Full Sample [418]	**4**	**26**	**12**	**14**	**31**	**12**
by County						
Kauai [44]	5	23	16	9	34	14
Oahu [189]	2	27	12	15	32	12
Maui [80]	6	21	8	16	39	10
Hawaii [103]	6	30	14	15	23	13
by Classification						
Commercial [385]	4	26	13	14	32	12
Highliner [45]	4	13	0	13	56	13
< 1000 lb [340]	4	27	15	14	29	12
Noncommercial [34]	3	33	3	24	24	12
by Target						
Deep 7 [263]	3	23	12	18	35	10
Other BMUS [92]	8	34	11	9	27	12
by Fished in recent season (since September 2009)						
Yes [347]	4	26	12	16	32	10
No [71]	4	30	13	7	27	20

Table 18

Survey Responses: "What is your opinion of previous and current management actions on promoting a sustainable bottomfish fishery in Hawaii" – Summer closure

Percentage of Responses [n]	Extremely Effective (%)	Somewhat Effective (%)	Neutral (%)	Somewhat Ineffective (%)	Not Effective at all (%)	Don't Know (%)
Full Sample [411]	**11**	**26**	**15**	**11**	**22**	**15**
by County						
Kauai [43]	9	21	19	12	21	19
Oahu [188]	8	27	16	10	21	18
Maui [79]	11	20	9	16	32	11
Hawaii [98]	15	29	16	10	18	11
by Classification						
Commercial [378]	11	26	16	11	23	13
Highliner [44]	9	16	11	14	41	9
< 1000 lb [334]	11	28	16	10	21	13
Noncommercial [33]	9	18	6	18	12	36
by Target						
Deep 7 [258]	12	25	14	13	24	11
Other BMUS [91]	12	30	11	9	19	20
by Fished in recent season (since September 2009)						
Yes [343]	11	27	14	12	23	14
No [68]	10	22	21	9	23	18

Table 19

Survey Responses: "What is your opinion of previous and current management actions on promoting a sustainable bottomfish fishery in Hawaii" – Noncommercial bag limits

Percentage of Responses [n]	Extremely Effective (%)	Somewhat Effective (%)	Neutral (%)	Somewhat Ineffective (%)	Not Effective at all (%)	Don't Know (%)
Full Sample [416]	**16**	**27**	**13**	**12**	**23**	**8**
by County						
Kauai [43]	21	19	19	21	19	2
Oahu [189]	13	32	12	12	24	7
Maui [78]	14	28	13	13	24	8
Hawaii [103]	21	20	15	8	23	13
by Classification						
Commercial [383]	17	26	13	12	23	8
Highliner [44]	11	34	9	5	30	11
< 1000 lb [339]	18	25	14	13	22	8
Noncommercial [33]	6	36	12	15	27	3
by Target						
Deep 7 [261]	18	27	11	10	25	8
Other BMUS [92]	14	24	20	14	23	5
by Fished in recent season (since September 2009)						
Yes [346]	17	27	13	12	24	7
No [70]	14	27	14	13	19	13

Table 20

Survey Responses: "What is your opinion of previous and current management actions on promoting a sustainable bottomfish fishery in Hawaii" – Noncommercial permits

Percentage of Responses [n]	Extremely Effective (%)	Somewhat Effective (%)	Neutral (%)	Somewhat Ineffective (%)	Not Effective at all (%)	Don't Know (%)
Full Sample [417]	**16**	**21**	**17**	**10**	**25**	**11**
by County						
Kauai [44]	23	18	14	14	20	11
Oahu [188]	14	21	17	12	28	8
Maui [79]	11	23	18	10	24	14
Hawaii [103]	19	19	18	7	21	15
by Classification						
Commercial [384]	16	21	17	10	24	11
Highliner [44]	18	9	14	7	27	25
< 1000 lb [340]	16	23	17	11	24	9
Noncommercial [33]	12	15	21	9	30	12
by Target						
Deep 7 [262]	16	20	16	11	26	11
Other BMUS [92]	16	22	17	11	26	8
by Fished in recent season (since September 2009)						
Yes [347]	17	20	17	10	26	10
No [70]	11	26	16	10	20	17

Table 21

Survey Responses: "I feel that I need to 'race' to catch bottomfish before the TAC is reached"

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [473]	**15**	**25**	**23**	**12**	**17**	**8**
by County						
Kauai [55]	20	31	13	13	15	9
Oahu [205]	10	24	27	13	17	9
Maui [89]	12	30	22	6	19	10
Hawaii [121]	24	19	22	13	17	4
by Classification						
Commercial [435]	16	25	23	12	17	8
Highliner [48]	27	35	19	6	10	2
< 1000 lb [387]	14	24	24	12	17	8
Noncommercial [33]	8	18	26	13	21	13
by Target						
Deep 7 [284]	18	31	22	13	13	4
Other BMUS [111]	10	15	26	10	23	16
by Fished in recent season (since September 2009)						
Yes [390]	16	26	24	13	16	5
No [83]	11	18	19	8	19	24

Table 22

Survey Responses: "I fish bottomfish less than I would like to because of the TAC limit"

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [473]	**21**	**22**	**22**	**12**	**16**	**7**
by County						
Kauai [54]	31	22	22	7	13	4
Oahu [205]	17	19	27	10	19	9
Maui [90]	21	22	20	10	19	8
Hawaii [121]	24	27	17	17	12	4
by Classification						
Commercial [435]	22	22	22	12	16	6
Highliner [49]	27	22	16	14	18	2
< 1000 lb [386]	21	22	23	12	16	7
Noncommercial [38]	16	21	26	8	18	11
by Target						
Deep 7 [284]	27	23	20	12	13	3
Other BMUS [111]	14	14	26	10	22	15
by Fished in recent season (since September 2009)						
Yes [390]	24	21	23	12	15	5
No [83]	8	24	17	13	20	17

Table 23

Survey Responses: "There are too many boats catching bottomfish"

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [472]	**12**	**19**	**27**	**16**	**11**	**14**
by County						
Kauai [55]	5	16	35	15	13	16
Oahu [205]	15	20	26	13	11	14
Maui [89]	8	22	25	18	13	13
Hawaii [120]	12	18	27	20	11	13
by Classification						
Commercial [434]	12	20	27	16	12	13
Highliner [49]	12	24	35	10	12	6
< 1000 lb [385]	12	19	25	17	12	14
Noncommercial [38]	8	16	34	13	8	21
by Target						
Deep 7 [283]	13	20	28	19	11	10
Other BMUS [111]	10	17	25	14	13	21
by Fished in recent season (since September 2009)						
Yes [388]	13	20	29	16	10	12
No [84]	8	19	17	18	17	21

Table 24

Survey Responses: "I fish in less safe sea conditions than I would like to"

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [474]	**13**	**27**	**17**	**18**	**21**	**4**
by County						
Kauai [55]	15	24	16	20	20	5
Oahu [204]	10	26	15	21	27	1
Maui [91]	13	32	20	13	19	3
Hawaii [121]	17	26	17	17	15	7
by Classification						
Commercial [436]	14	28	18	18	20	4
Highliner [49]	20	39	14	16	11	0
< 1000 lb [387]	13	26	18	18	21	4
Noncommercial [38]	3	18	8	24	42	5
by Target						
Deep 7 [284]	14	29	17	19	19	2
Other BMUS [113]	12	24	17	19	26	3
by Fished in recent season (since September 2009)						
Yes [390]	13	27	18	19	20	3
No [84]	14	25	13	13	26	8

Table 25

Survey Responses: "I feel the prices I receive for bottomfish are…higher, lower, about the same as before TAC management"

Percentage of Responses* [n]	Higher (%)	About the same (%)	Lower (%)	Don't Know (%)
Full Sample [354]	**6**	**50**	**21**	**23**
by County				
Kauai [43]	2	61	19	19
Oahu [138]	8	40	23	29
Maui [69]	6	63	18	13
Hawaii [101]	4	53	23	21
by Classification				
Commercial [368]	6	50	21	23
Highliner [49]	2	65	27	6
< 1000 lb [319]	7	48	21	25
by Target				
Deep 7 [219]	4	58	23	16
Other BMUS [86]	11	44	15	30
by Fished in recent season (since September 2009)				
Yes [303]	7	52	21	20
No [51]	2	39	24	35

* - commercially licensed fishermen that reported selling fish, additionally there are 3 fishermen from mainland that are not included in the County breakdown

Table 26

Survey Responses: "How Familiar are you with 'catch share' systems?"

Percentage of Responses [n]	Extremely Familiar (%)	Somewhat Familiar (%)	I have not heard of it/ Don't know (%)
Full Sample [515]	**5**	**24**	**71**
by County			
Kauai [61]	2	31	66
Oahu [217]	6	24	70
Maui [98]	5	27	68
Hawaii [136]	7	20	73
by Classification			
Commercial [473]	6	25	69
Highliner [49]	12	43	45
< 1000 lb [424]	5	22	73
Noncommercial [42]	2	19	79
by Target			
Deep 7 [294]	6	27	67
Other BMUS [128]	6	22	72
by Fished in recent season (since September 2009)			
Yes [414]	6	27	67
No [101]	3	11	86

Table 27

Survey Responses: "In thinking about how to manage the Hawaii bottomfish fishery in the future, please indicate your level of approval for establishing a form of a 'catch share' system?"

Percentage of Responses [n]	Strongly Support (%)	Somewhat Support (%)	Neutral (%)	Somewhat Opposed (%)	Strongly Opposed (%)	Don't Know (%)
Full Sample [512]	**5**	**9**	**17**	**9**	**22**	**37**
by County						
Kauai [61]	3	13	20	7	20	38
Oahu [218]	5	8	16	8	26	38
Maui [95]	4	13	17	14	18	35
Hawaii [135]	8	8	19	8	19	37
by Familiarity with catch shares						
Extremely [27]	19	7	15	11	48	0
Somewhat [124]	4	17	19	15	40	6
None [262]	6	8	16	7	15	47
Don't Know [98]	3	3	18	4	10	61

Table 28

Survey Responses: "What characteristics of a 'catch share' program would you support?" – Individual quota for each fisherman (everyone gets an equal share)

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [340]	**22**	**17**	**9**	**11**	**32**	**8**
by County						
Kauai [45]	16	29	7	20	24	4
Oahu [147]	22	16	14	10	34	5
Maui [59]	14	17	5	14	39	12
Hawaii [88]	33	14	7	7	30	10
by Classification						
Commercial [317]	22	17	9	11	33	7
Highliner [38]	5	11	11	8	66	0
< 1000 lb [279]	25	18	8	11	29	8
Noncommercial [23]	22	17	22	9	17	13
by Target						
Deep 7 [198]	21	15	10	13	35	7
Other BMUS [85]	26	24	6	8	33	4
by Fished in recent season (since September 2009)						
Yes [283]	22	19	9	11	34	6
No [57]	23	11	12	12	26	16

Table 29

Survey Responses: "What characteristics of a 'catch share' program would you support?" – Individual quota for each fisherman (based on catch history) that cannot be transferred

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [331]	**11**	**13**	**12**	**11**	**44**	**8**
by County						
Kauai [43]	12	19	14	16	30	9
Oahu [144]	10	12	12	11	50	5
Maui [57]	5	18	12	14	37	14
Hawaii [86]	14	9	13	7	47	10
by Classification						
Commercial [309]	11	13	12	11	45	8
Highliner [38]	13	16	5	16	45	5
< 1000 lb [271]	11	13	13	11	45	8
Noncommercial [22]	0	9	23	14	36	18
by Target						
Deep 7 [194]	9	12	9	13	49	7
Other BMUS [81]	12	14	15	12	41	6
by Fished in recent season (since September 2009)						
Yes [275]	11	14	12	12	44	7
No [56]	11	9	14	7	45	14

Table 30

Survey Responses: "What characteristics of a 'catch share' program would you support?" – Individual quota for each fisherman (based on catch history) that is transferable

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [333]	**8**	**9**	**15**	**13**	**45**	**10**
by County						
Kauai [43]	2	16	16	14	42	9
Oahu [143]	8	8	15	11	52	6
Maui [57]	2	12	16	18	39	14
Hawaii [89]	16	6	13	11	40	13
by Classification						
Commercial [311]	9	9	14	13	46	9
Highliner [38]	13	13	8	8	55	3
< 1000 lb [273]	8	8	15	14	45	10
Noncommercial [22]	0	14	23	9	36	18
by Target						
Deep 7 [195]	7	8	9	14	53	8
Other BMUS [81]	11	10	19	15	37	9
by Fished in recent season (since September 2009)						
Yes [275]	8	9	14	13	47	9
No [58]	9	9	17	12	40	14

Table 31

Survey Responses: "What characteristics of a 'catch share' program would you support?" – Quota allocated to fishing communities

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [329]	**4**	**10**	**17**	**14**	**44**	**12**
by County						
Kauai [44]	7	11	20	11	36	14
Oahu [142]	3	11	15	13	50	8
Maui [57]	4	14	11	18	39	16
Hawaii [85]	5	6	21	14	41	13
by Classification						
Commercial [307]	4	10	17	14	43	11
Highliner [38]	3	8	11	18	61	0
< 1000 lb [269]	4	10	18	14	41	13
Noncommercial [22]	0	14	9	9	50	18
by Target						
Deep 7 [193]	4	9	12	16	51	9
Other BMUS [81]	6	14	20	15	35	11
by Fished in recent season (since September 2009)						
Yes [273]	4	11	16	15	44	10
No [56]	5	7	20	9	41	18

Table 32

Survey Responses: "What characteristics of a 'catch share' program would you support?" – Quota allocated to cooperative or hui

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral(%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [325]	**1**	**5**	**14**	**14**	**54**	**11**
by County						
Kauai [43]	2	7	14	19	49	9
Oahu [140]	1	6	15	14	55	9
Maui [56]	0	7	9	21	48	14
Hawaii [85]	1	1	16	9	58	14
by Classification						
Commercial [303]	1	5	14	15	53	11
Highliner [37]	0	0	5	22	70	3
< 1000 lb [266]	2	6	15	14	51	12
Noncommercial [22]	0	5	18	5	59	14
by Target						
Deep 7 [190]	2	3	8	17	62	9
Other BMUS [80]	1	9	21	16	43	10
by Fished in recent season (since September 2009)						
Yes [269]	1	5	14	16	54	10
No [56]	4	5	18	7	50	16

Table 33

Survey Responses: "What characteristics of a 'catch share' program would you support?" – A portion of quota reserved for new entrants (not currently in fishery)

Percentage of Responses [n]	Strongly Agree (%)	Somewhat Agree (%)	Neutral (%)	Somewhat Disagree (%)	Strongly Disagree (%)	Don't Know (%)
Full Sample [327]	**3**	**10**	**20**	**8**	**43**	**16**
by County						
Kauai [43]	2	12	26	5	37	19
Oahu [140]	4	11	20	6	44	14
Maui [57]	0	14	16	12	42	16
Hawaii [86]	2	5	22	9	43	19
by Classification						
Commercial [305]	3	11	20	8	42	16
Highliner [37]	0	8	14	16	54	8
< 1000 lb [268]	3	11	21	7	41	17
Noncommercial [22]	5	5	27	5	45	14
by Target						
Deep 7 [195]	3	10	14	10	48	15
Other BMUS [79]	4	9	33	8	37	10
by Fished in recent season (since September 2009)						
Yes [273]	3	10	21	9	43	14
No [54]	2	11	19	2	39	28

Table 34

Response rates to open-ended comment questions by comment topic

Percentage of Responses [n]	Past Mgmt (%)	TAC mgmt (%)	Catch shares (%)	Suggestions for future mgmt/topic further study (%)
Full Sample [519]	**23**	**21**	**24**	**29**
by County				
Kauai [61]	26	23	25	38
Oahu [219]	20	14	19	24
Maui [98]	32	30	33	35
Hawaii [138]	25	26	25	31
by Classification				
Commercial [477]	25	24	26	34
Highliner [49]	35	37	51	54
< 1000 lb [428]	23	22	22	21
Noncommercial [42]	7	10	10	17
by Target				
Deep 7 [297]	30	26	29	34
Other BMUS [128]	20	16	18	27
by Fished in recent season (since September 2009)				
Yes [416]	23	26	24	32
No [103]	15	17	23	20

FIGURES

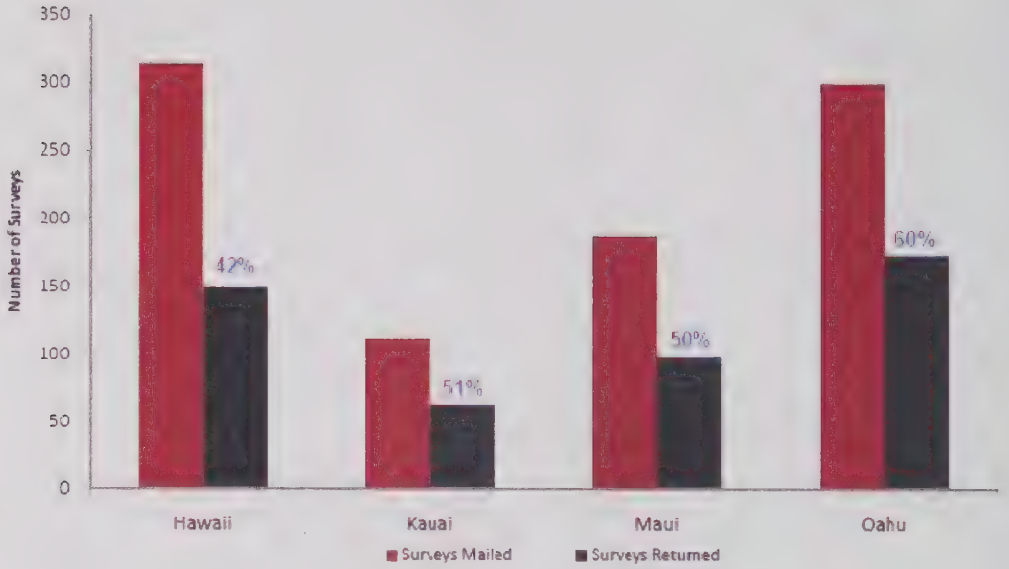

Figure 1. Hawaii bottomfish survey response rates, by county

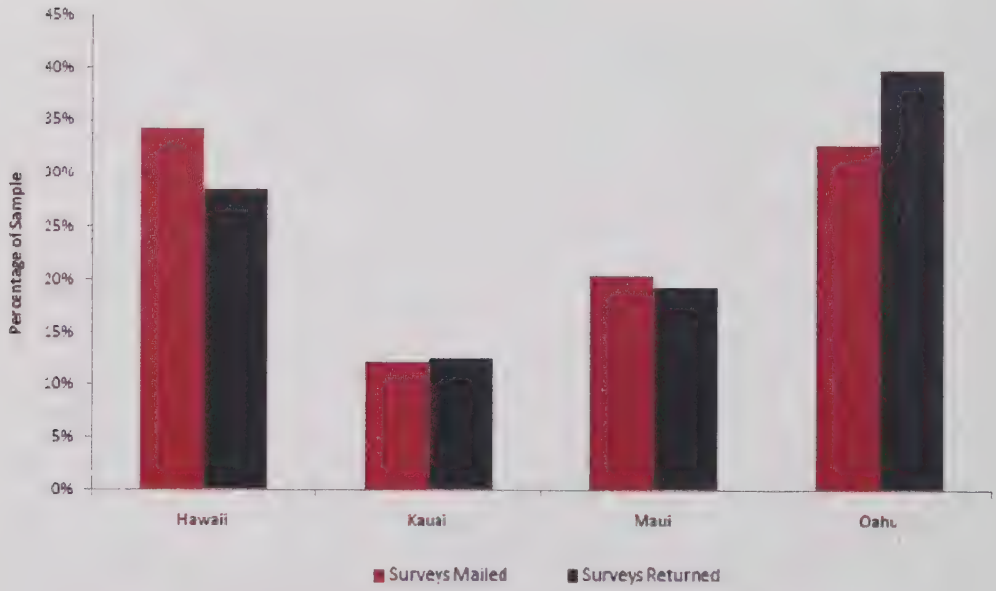

Figure 2. Distribution of Hawaii bottomfish survey response, by county

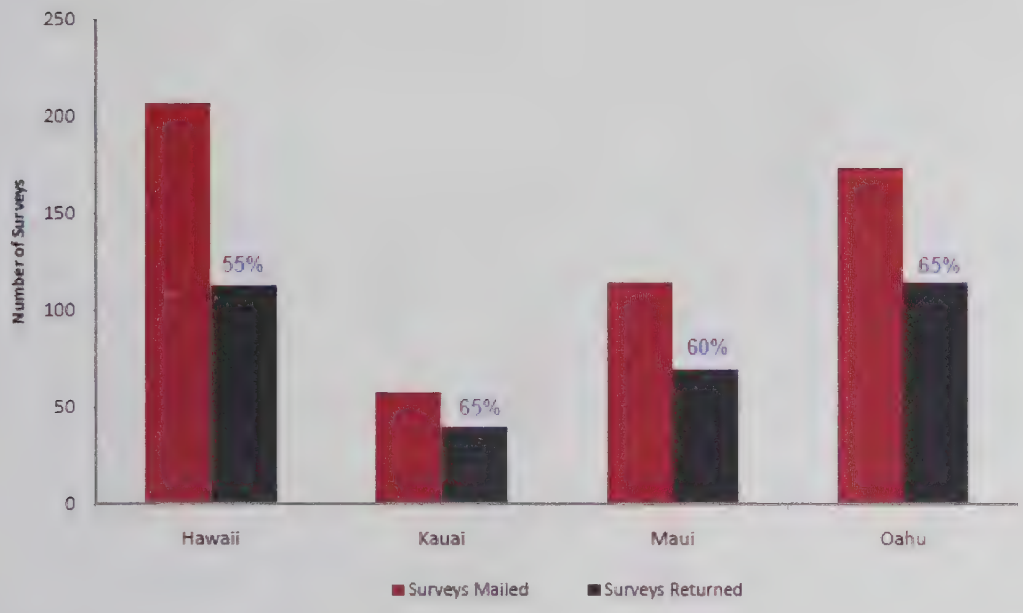

Figure 3. Hawaii bottomfish survey response rates, active Deep 7 fishermen, by county

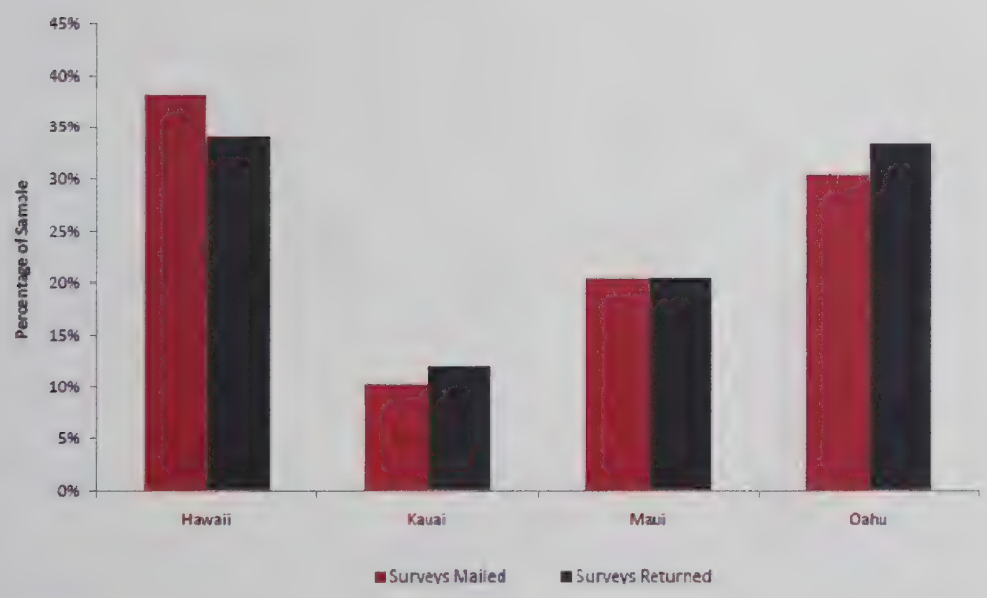

Figure 4. Distribution of bottomfish survey responses, Deep 7 fishermen, by county

Figure 5. Measure of support for potential TAC management programs

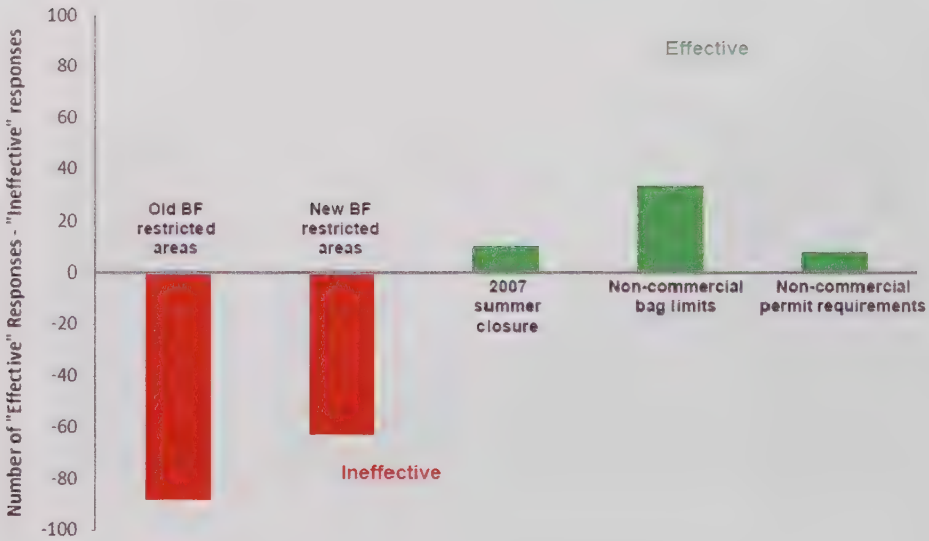

Figure 6. Measure of effectiveness for past management tools

APPENDIX A. SURVEY INSTRUMENT

OMB Control # 0648-0369 Expiration Date 02/28/2013

Aloha, help us to better understand bottomfish fishing in Hawaii. Your fishing experiences and opinions of bottomfish management are important for getting accurate results. We want to best represent bottomfish fishers in Hawaii and we can only do that by hearing from as many fishermen as possible. While your response is voluntary, we hope that you can help us in this research.

SECTION A. YOUR FISHING EXPERIENCES

Different bottomfish fishermen in Hawaii had different fishing experiences over the past 12 months. Please tell us about yours.

1. Approximately how many total fishing trips did you take over the past 12 months? (please check one)

- ☐ Less than 25 trips (about once every other week)
- ☐ 25 – 49 trips (about once a week)
- ☐ 50 – 99 trips (about once or twice a week)
- ☐ 100 – 200 trips (about two to three times a week)
- ☐ more than 200 trips (about four times a week)

2. In the past 12 months, how many of your fishing trips were primarily bottomfish trips: (please check one)

Almost all of my trips (90%-100%)	Most of my trips (60%-89%)	About half (40%-59%)	Some of my trips (10%-39%)	Very few of my trips (1%-9%)	None of my trips	
☐	☐	☐	☐	☐	☐	☐ don't know

3. When you fish for bottomfish do you **primarily** target (please check one)

- ☐ Deep 7 bottomfish
- ☐ Other bottomfish (shallow, less than 50 fathoms)
- ☐ I don't have any particular target species when I bottomfish
- ☐ Don't know

4. In the past 12 months, how many of your bottomfish trips did you fish for bottomfish in

	Almost all of my trips (90%-100%)	Most of my trips (60%-89%)	About half (40%-59%)	Some of my trips (10%-39%)	Very few of my trips (1%-9%)	None of my trips	
State waters only (0-3nm)	☐	☐	☐	☐	☐	☐	☐ don't know
Federal waters only (greater than 3nm)	☐	☐	☐	☐	☐	☐	☐ don't know
Both State and Federal Waters	☐	☐	☐	☐	☐	☐	☐ don't know

5. In the past 12 months, how many of your bottomfish trips were:

	Almost all of my trips (90%-100%)	Most of my trips (60%-89%)	About half (40%-59%)	Some of my trips (10%-39%)	Very few of my trips (1%-9%)	None of my trips	
Single day (or night) trips	☐	☐	☐	☐	☐	☐	☐ don't know
Multiday trips	☐	☐	☐	☐	☐	☐	☐ don't know

6. How long is your average bottomfish trip? ____ hours

7. How many people in total, including yourself, are on board for an average bottomfish trip? _____ people

8. Do you have a network of fishermen that you share bottomfish fishing information with? (current fishing conditions, fishing strategy, prices, etc.)

☐ YES
☐ NO

9. Do you always fish bottomfish out of the same boat ramp or harbor?

☐ YES **If you answered yes, go to Question 10**
☐ NO → *If no:*
9a. On average, how many different boat ramps or harbors do you use in a year? _____ ramps

10. On average, how far (one-way) do you travel to fish? _____ miles
If trailered, indicate one-way distance to most common ramp; If moored, please indicate one-way distance to slip

11. In the past 12 months, approximately how many total pounds of Deep 7 bottomfish did **you** catch?

☐ 0 – 50 pounds
☐ 51 – 100 pounds
☐ 101 – 500 pounds
☐ 501 – 1000 pounds
☐ 1001 – 2500 pounds
☐ More than 2500 pounds

12. In the past 12 months, approximately how many total pounds of other bottomfish did **you** catch?

☐ 0 – 50 pounds
☐ 51 – 100 pounds
☐ 101 – 500 pounds
☐ 501 – 1000 pounds
☐ 1001 – 2500 pounds
☐ More than 2500 pounds

SECTION B. WHAT DO YOU THINK?

Fishermen in Hawaii have very different attitudes and perceptions toward current management. We'd like to hear what you think.

The bottomfish fishery underwent significant changes three years ago with the institution of a total allowable catch (TAC) limit for Deep 7 bottomfish in the main Hawaiian Islands. For the following questions, we'd like to know how you feel about total allowable catch management for Hawaii bottomfish.

13. A total allowable catch (TAC) limit was needed to maintain a sustainable bottomfish fishery

Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	
☐	☐	☐	☐	☐	☐ don't know

14. TAC levels have been different in each of the last three years – do you feel the TAC level in each year was set… too high, about right, or too low?

YEAR	TAC Level	Too High	About Right	Too Low	
2007	178,000 pounds	☐	☐	☐	☐ don't know
2008	234,000 pounds	☐	☐	☐	☐ don't know
2009	254,050 pounds	☐	☐	☐	☐ don't know

15. What characteristics of a total allowable catch (TAC) program would you support?

	Strongly Support	Somewhat Support	Neutral	Somewhat Opposed	Strongly Opposed	
TAC for Deep 7 bottomfish only	☐	☐	☐	☐	☐	☐ don't know
TAC for all bottomfish species	☐	☐	☐	☐	☐	☐ don't know
TAC that only applies to commercial fishing	☐	☐	☐	☐	☐	☐ don't know
A separate TAC for commercial and recreational fishing	☐	☐	☐	☐	☐	☐ don't know
A separate TAC for each island	☐	☐	☐	☐	☐	☐ don't know
A TAC that covers multiple years	☐	☐	☐	☐	☐	☐ don't know

☐ I do not support any form of Total Allowable Catch management

If you wish to add additional comments to clarify your response you may do so here:

We'd like to now ask your level of satisfaction with fishery management agencies and recent management tools

16. How satisfied are you with bottomfish management agencies?

	Strongly Satisfied	Somewhat Satisfied	Neutral	Somewhat Dissatisfied	Extremely Dissatisfied	
Federal management of Hawaii bottomfish	☐	☐	☐	☐	☐	☐ don't know
State management of Hawaii bottomfish	☐	☐	☐	☐	☐	☐ don't know

17. On a scale of 'Extremely Effective' to 'Not Effective At All' please mark your opinion of previous and current management actions on promoting a sustainable bottomfish fishery in Hawaii

	Extremely Effective	Somewhat Effective	Neutral	Somewhat Ineffective	Not effective at all	
Old bottomfish restricted areas (BFRAs)	☐	☐	☐	☐	☐	☐ don't know
New bottomfish restricted areas (BFRAs)	☐	☐	☐	☐	☐	☐ don't know
Summer closure in 2007	☐	☐	☐	☐	☐	☐ don't know
Bag limits for non-commercial fishermen	☐	☐	☐	☐	☐	☐ don't know
Non-commercial bottomfish permit requirements	☐	☐	☐	☐	☐	☐ don't know

If you wish to add additional comments to clarify your response you may do so here:

SECTION C. MARKET PARTICIPATION

18. People have different opinions on the definition of commercial fishing. How would you define a fisherman as commercial? (check all that apply)

- ☐ Sells at least one fish
- ☐ Sells a portion of fish after a good trip to cover trip expenses
- ☐ Sells fish over and above trip expenses to make a profit
- ☐ Sells fish only to friends and neighbors
- ☐ Exchanges fish for goods and/or services
- ☐ Earns the majority of their income from fishing
- ☐ Relies solely on fishing to provide income
- ☐ Other _____

19. How do you define yourself as a bottomfish fisherman? (check all that apply)

- ☐ Full-time commercial
- ☐ Part-time commercial
- ☐ Recreational
- ☐ Subsistence
- ☐ Other (specify) _____

20. In the past 12 months, what percentage of your bottomfish (BF) catch was:

	Almost all of my BF (90%-100%)	Most of my BF (60%-89%)	About half (40%-59%)	Some of my BF (10%-39%)	Very little of my BF (1%-9%)	None of my BF
Consumed at Home	☐	☐	☐	☐	☐	☐
Given to relatives	☐	☐	☐	☐	☐	☐
Given to crew	☐	☐	☐	☐	☐	☐
Given to friends/neighbors/ coworkers	☐	☐	☐	☐	☐	☐
Exchanged for goods/ services	☐	☐	☐	☐	☐	☐
Provided for community and/ or cultural event	☐	☐	☐	☐	☐	☐
Sold	☐	☐	☐	☐	☐	☐ →

If none sold, go to Question 26, page 6

If you sold any of your bottomfish..

21. Where did you sell your bottomfish catch?

	Almost all of my BF (90%-100%)	Most of my BF (60%-89%)	About half (40%-59%)	Some of my BF (10%-39%)	Very little of my BF (1%-9%)	None of my BF
United Fishing Agency Auction (Honolulu)	☐	☐	☐	☐	☐	☐
Dealer/Wholesaler	☐	☐	☐	☐	☐	☐
Markets/Stores	☐	☐	☐	☐	☐	☐
Restaurants	☐	☐	☐	☐	☐	☐
Friends/neighbors/coworkers	☐	☐	☐	☐	☐	☐
Roadside Sales	☐	☐	☐	☐	☐	☐
Other (specify) _____	☐	☐	☐	☐	☐	☐

22. Can you usually sell all of your fish if you want to?

☐ YES ☐ Don't Know
☐ NO

If NO: why not?_____

23. I feel the prices I receive for bottomfish are:

☐ Higher than before TAC managment ☐ Lower than before TAC management
☐ About the same as before TAC management ☐ Don't know

24. In the past 12 months what percent of your personal income, before taxes, came from all your fishing?

Almost all (90%-100%)	Most (60%-89%)	About half (40%-59%)	Some (10%-39%)	Very little (1%-9%)	None
☐	☐	☐	☐	☐	☐

25. In the past 12 months what percent of your fishing income, before taxes, came from bottomfish fishing?

Almost all (90%-100%)	Most (60%-89%)	About half (40%-59%)	Some (10%-39%)	Very little (1%-9%)	None
☐	☐	☐	☐	☐	☐

26. Are the bottomfish you catch an important source of food for your family?

☐ YES ☐ Don't Know
☐ NO

27. Are the non-bottomfish fish you catch an important source of food for your family?

☐ YES ☐ Don't Know
☐ NO

SECTION D. VESSEL AND GEAR

In this section we want to better understand the vessel and gear characteristics of the bottomfish fishery

28. Do you own the boat that you fish bottomfish on?

☐ YES → **If yes, go to Question 29 on page 8**
☐ NO

28a. Do you always fish bottomfish on the same boat?

☐ YES
☐ NO

28b. Do you always fish bottomfish with the same captain?

☐ YES
☐ NO

28c. Do you report your bottomfish catch separately from others on the boat?

Always	Sometimes	Rarely	Never
☐	☐	☐	☐

28d. How are you compensated for your time as bottomfish crew? (if yes, check box and estimate percentage (%), check all that apply)

☐ I keep a percentage of total fish caught _____ % of fish caught

☐ I get a percentage of the value of the fish sold _____ % of value for trip

☐ I pay a percentage of trips costs _____ % of trip costs

☐ I keep all the fish I catch

☐ No compensation - I just like to fish

☐ Don't know/different every time

If you have some other compensation arrangement that you could detail please describe below:

Please continue to Section E on page 9 →

If you own the boat you bottomfish on:

29. What is the length of your boat? _____ feet

30. What is the horsepower? _____ hp

31. In what year was the boat built? _____

32. Do other people (other than family members) use the boat without you?

Often	Sometimes	Rarely	Never
☐	☐	☐	☐

33. If you are the boat captain on bottomfish trips, how do you typically compensate your crew?

- ☐ Given a percentage of total fish caught _____%
- ☐ Given a percentage of value of fish sold _____%
- ☐ Crew pays a percentage of trips costs _____%
- ☐ Crew keeps all the fish they catch
- ☐ I always fish alone
- ☐ Don't Know/different every time

If you have some other compensation arrangement that you could detail please describe below:

34. In what year did you purchase the boat you bottomfish on?_____
(if homebuilt – when did you complete it?)

35. How much did you pay to purchase the boat you bottomfish on? $ _____
(if homebuilt – how much did it cost to build it?)

36. Was the boat purchased...

☐ New ☐ Used

37. How did you purchase this boat?

- ☐ cash only
- ☐ cash and loan
- ☐ loan only

If cash and loan or loan only:
37a. What was the original loan amount? $ _____

38. What is the approximate market value, in dollars (considering age and current condition), of the **electronics** you currently use to fish? $ _____

39. When did you last upgrade your fishing electronics (GPS, fishfinder/recorder)?

this past year	1 to 3 years ago	over 3 years ago
☐	☐	☐

40. What is the approximate market value, in dollars (considering age and current condition), of the **gear** you currently use to fish (not including electronics)? $ _____

41. What is the approximate market value, in dollars (considering age and current condition), of your **boat** (including motor(s) and trailer, but not including gear, equipment, or electronics mentioned above)? $ _____

SECTION E. YOUR LAST BOTTOMFISH TRIP

We'd like to know how much it cost for your most recent bottomfish trip

42. Think about your last bottomfish trip, in what month and year was this trip made? _____ month

_____ year

43. How much money was spent on your most recent bottomfish trip?

Type of Expenditure	Trip Expenditure (most recent trip)	What type of fuel?
Boat fuel	$ _____	☐ gas ☐ diesel
Truck fuel (round-trip)	$ _____	☐ gas ☐ diesel
Ice	$ _____	
Bait	$ _____	
Food and beverage	$ _____	
Other (specify) _____	$ _____	

44. What percentage of these costs did you pay? _____%

SECTION F. 2009 FISHING EXPENDITURES

In an effort to better understand your economic contribution to the state of Hawai'i we would like to ask about your fishing-related expenditures in 2009. In the table below please indicate how much, if any, was spent on the following items during 2009.

Enter "0" if you did not have any expenses in a category. Please do not leave blank.
Remember that all your answers are strictly confidential.

45.

Cost Category	2009 Expenditure (dollars)
Boat insurance	$_____
Loan payments	$_____
Financial services (accounting, taxes)	$_____
Moorage fees	$_____
Repair, maintenance, and improvements for vessel, engines, or trailer	$_____
Oil and lube	$_____
Gear (lines, lures, gaffs, rods, electric/hydraulic reels, coolers, etc.)	$_____
Electronics	$_____
Fees (CML, non-commercial permit ramp, registration for truck and trailer, club dues, etc.)	$_____
Safety Equipment	$_____
Other (specify)	$_____

46. Some fishermen purchase fishing gear, electronics, safetly equipment or other items online or through a catalog and shipped to Hawaii. Approximately what percentage of these expenditures were purchased out of state? _____ %

SECTION G. ABOUT YOU

Different people have different fishing experiences and different attitudes about management of Hawaii bottomfish. The following questions help us to better understand these differences.

47. What is your age?

- ☐ Less than 25 years
- ☐ 25 to 34 years
- ☐ 35 to 44 years
- ☐ 45 to 54 years
- ☐ 55 to 64 years
- ☐ more than 64 years

48. How long have you targeted bottomfish?_____ years

49. How would you describe your race? (check all that apply)

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Hispanic or Latino
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White

50. Are you currently employed?

- ☐ Employed full-time
- ☐ Employed part-time
- ☐ Retired
- ☐ Student (full-time)
- ☐ Student (part-time)
- ☐ Unemployed
- ☐ Other (specify)_____

51. What is the highest level of education you have completed?

- ☐ Less than 9th grade
- ☐ Some high school (no diploma)
- ☐ High school graduate (including GED)
- ☐ Some college (no degree)
- ☐ Associates degree or technical school
- ☐ College graduate (bachelor degree)
- ☐ Advanced, professional, or doctoral degree

52. What was your total household income, before taxes, in 2009, including fishing income?

- ☐ Less than $10,000
- ☐ $10,000 to $14,999
- ☐ $15,000 to $24,999
- ☐ $25,000 to $34,999
- ☐ $35,000 to $49,999
- ☐ $50,000 to $74,999
- ☐ $75,000 to $99,999
- ☐ $100,000 to $149,999
- ☐ $150,000 to $199,999
- ☐ $200,000 or more

SECTION H. YOUR PERCEPTIONS

Lastly, we'd like to ask you about your perceptions of current bottomfish fishing conditions.

53. I feel that I need to 'race' to catch bottomfish before the TAC is reached

Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	
☐	☐	☐	☐	☐	☐ don't know

54. I fish bottomfish less than I would like to because of the TAC limit

Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	
☐	☐	☐	☐	☐	☐ don't know

55. There are too many boats catching bottomfish

Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	
☐	☐	☐	☐	☐	☐ don't know

56. I fish in less safe sea conditions than I would like to

Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	
☐	☐	☐	☐	☐	☐ don't know

In the United States, and worldwide, many fisheries are being managed by 'catch share' systems. These systems allocate a specific portion of the total allowable catch of a fishery to individuals, cooperatives, communities, or other entities. Each existing program is designed differently to address the specific conditions of the fishery.

57. How familiar are you with 'catch share' systems?

Extremely Familiar	Somewhat Familiar	I have not heard of it	
☐	☐	☐	☐ don't know

58. In thinking about how to manage the Hawaii bottomfish fishery in the future, please indicate your level of approval for establishing a form of a 'catch share' system

Strongly Support	Somewhat Support	Neutral	Somewhat Opposed	Strongly Opposed	
☐	☐	☐	☐	☐	☐ don't know

59. What characteristics of a 'catch share' program would you support?

	Strongly Support	Somewhat Support	Neutral	Somewhat Opposed	Strongly Opposed	
Individual quota for each fisherman (everyone gets equal share)	☐	☐	☐	☐	☐	☐ don't know
Individual quota for each fisherman (based on catch history) that cannot be transferred	☐	☐	☐	☐	☐	☐ don't know
Individual quota for each fisherman (based on catch history) that is transferable	☐	☐	☐	☐	☐	☐ don't know
Quota allocated to fishing communities	☐	☐	☐	☐	☐	☐ don't know
Quota allocated to cooperatives or hui	☐	☐	☐	☐	☐	☐ don't know
A portion of quota reserved for new entrants (not currently in fishery)	☐	☐	☐	☐	☐	☐ don't know

☐ I would not support any form of 'catch share' program

If you wish to add additional comments to clarify your response or suggest an alternate way you may do so here:

Mahalo for participating in this survey.

Please use the enclosed postage paid return envelope to mail back your survey.

If you misplaced the envelope call Justin Hospital at 1-877-584-1288 for a replacement.

Please go to next page to provide additional comments →

Do you have any suggestions for how Hawaii's bottomfish fisheries should be managed or topics that you feel need further study? (please write in the space provided)

Would you like to receive a copy of the final report for this study?

☐ YES

☐ NO

Name:

Address:

May we contact you if we have any questions about your survey responses?

☐ YES Phone: _____ best time to reach you: _____

☐ NO (your phone number will be kept strictly confidential)

Paperwork Reduction Act Statement: The information you provide will remain strictly confidential as required by section 402(b) of the Magnuson-Stevens and NOAA Administrative Order 216-100 Confidentiality of Fisheries Statistics, and will not be released for public use except in aggregate statistical form without identification as to its source. We will combine your responses with information provided by other participants, and report it in summary form so that responses for any individual vessel can not be identified. Public reporting burden for this information collection, including time for gathering data needed and completing the survey, is estimated to average 45 minutes per respondent. Please provide comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Justin Hospital, NOAA Fisheries, 1601 Kapiolani Blvd, Suite 1110., Honolulu, HI 96814, 808-944-2188, Justin.Hospital@noaa.gov. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

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APPENDIX B. COMMENTS FROM FISHERMEN

The survey questionnaire provided fishermen the opportunity to expand on their responses to the attitudinal questions by including three open-ended sections prefaced with the text, "if you wish to add additional comments to clarify your response you may do so here." Additionally, the final page of our survey questionnaire was an empty page with an open-ended question at the top: "Do you have any suggestions for how Hawaii's bottomfish fishery should be managed or topics you feel need further study?"

This appendix presents a relatively raw account of the numerous comments and suggestions received from fishermen. For organizational purposes, we present the comments by general themes, including: Total allowable catch (TAC) management, bottomfish restricted fishing areas (BFRAs), past management tools, catch shares, enforcement, comments and suggestions towards management in general, licenses, closed season, issues of scale, cultural considerations, stock conditions, invasive species, and the nature of bottomfishing.

Total Allowable Catch Management

Comment

- Don't believe the TAC was reached and season was closed early this last year!
- Fishing depends a lot on currents and different years the currents can be good or bad so it's really difficult to put a TAC.

Support

- I like this form of management rather the IFQ which privatizes wild animals.
- With the pounds added from 2007-2009 it seems there isn't any significant shortage of bottomfish.
- TAC needs to be set in ensure future fish stocks.
- I support TAC. It has worked pretty good in the past 3 years. Setting the TAC amount is the real question.

Support Conditionally

- I think the TAC is good in a sense, but on the otherhand, I think the Hawaiian people should be allowed to take fish to feed their family, not sell, whenever they like. Thanks.
- Some areas in Hawaii need a TAC, but the areas that I fish are limited by weather so these areas have a lot of fish. I do not know the answer to the overfished areas, but other areas have a lot of fish.
- Longer season. Let me catch my need. Only way I could support any TAC is if I could be assured I could continue to make a living commercial fishing. Sole income in my whole life is doing this.

- There has to be some sort of TAC because fish stocks take so long to regenerate in specific areas. Especially the areas that are easy to access.
- Some of the rules need to changed or rewritten also I do support the TAC program but when it is done the right way.
- In today's bottom fishery mostly smaller boats making overnight or day trips is the norm. As such, we are limited to fishing days w/ 15 knot winds or less (mostly Oahu) and windward side of other islands. So I don't think a TAC is needed now. However when the NWHI fishery closes, those larger boats fishing multiple days won't be limited by weather, so fishing days will increase, so we may need a TAC then!
- TAC system appears to be a reasonable system. BFRAs should be removed from federal waters and any needed changes can be made to each yearly TAC to address any changes in the estimation population counts.
- I think a TAC is good, but your whole system of rules has to be rewritten. Areas of closures makes no sense, some places that are open should be closed. It needs to be rewritten. The grounds should be the first place to be closed - it's the closest run. Anyway, we will see if this helps.
- I think that limiting catch is good but only if it's enforced. We know of a few commercial boats that fish in restricted areas and nothing is being done to enforce it. Due to shortage of staff. I can understand but why have a law if you can't enforce it. The TAC limit is being reached by a small number of boats who catch a lot.

Oppose

- Your TAC has created a stupid, derby mentality and destroyed my overall profitability.
- TAC too low for North Kauai fishermen. Too much big swells Oct to April.
- Fishermen who live and fish out of certain areas of the state (like the North Shore of Kauai or anywhere where big winter surf makes it impossible to launch their vessels from October to April) should have some kind of extension in the bottomfish season closure - it is not fair for us who live in this kind of area with launching ramps and channels that are unsafe in the wintertime.
- I don't think it makes a difference.
- I do not support the TAC for one reason. The TAC is not made from a stock assessment. There has never been an accurate stock assessment done in the MHI. Until there is concrete data that is collected, there will never be an accurate stock assessment. With an accurate stock assessment, there will be a higher TAC. Therefore, we will have no season closure.
- I agree on fish management, not TAC.
- It will not work as every year there's more fishermen. Raise the cap every year or limit entry for commercial bottomfishing.
- Until good scientific data is available I object to the TAC.
- The TAC is too low! If 254 fishermen caught 100 pounds of fish a week, the TAC would be reached in 2.5 months! Stores and restaurants can't afford to only be able to buy 100 pounds a week, and in 2.5 months the season is closed.

- TAC limits are not needed. The weather does a good enough job.
- Each year since the implementation of the TAC, the TAC levels have been reached in April or May each year leaving a 4 month closure. Does this not support that there is enough fish and that TAC quotas are too low?
- I think the TAC is a waste of time. You can eliminate it with seasonal closures because nobody monitors the recreational fishermen on their catches the TAC is not accurate.
- I feel that the season for Deep 7 should be like the old days, no closed season.
- A TAC favors those with larger boats so it is unfair to the small boat recreational/subsistence fisher and forces them to fish in less favorable conditions in a race to catch something before the TAC is reached.
- Most people that bottomfish are recreational or small time CML. The TAC is too small for lots of people to catch lots of fish, enough to sustain themselves. Stores don't want to buy bottomfish because there is not enough in the TAC to be profitable for them. Remember only 250 stores and restaurants can serve 100 lbs a week and season will be closed. Only 254 in the whole state of Hawaii. That sounds to me like our TAC is hurting our economy.
- There should be no season closure for recreational bottomfishing so people can still feed their families.
- TAC is not workable - all other forms of regulation is not enforceable.
- Closures so far (3 years) have averaged about 4.5 months per year! Too long. We have a healthy stock of Deep 7 fish here on Molokai and only about 5 fishermen who seriously fish for them. I think it's ridiculous to be shut down for 4 or 5 months a year.
- Get real on TAC! Fish populations in most areas are as healthy as ever. Rising costs of fishing will continue to reduce fishing pressure. Current TAC figures are arbitrary, unnecessary, and unfair!

  Nobody really knows how many Deep 7 bottomfish there are in the MHI, or whether the numbers are increasing or decreasing. The TAC of 247,000 lbs (or whatever) is completely arbitrary! It is somebody's wild guess at what is appropriate to reduce the quantity of fish caught. This presumes we are catching too much. I think we're barely making a dent in them! (except for a few overfished spots such as "the fingers" on the Penguin Banks).

  The number of commercial fishermen is steadily dropping due to financial considerations - steady fish prices and increasing costs. Slip fees, ice, bait, and fuel all rising, not to mention the price of boats and maintaining them.

  With a few selective area closures the Deep 7 harvest is completely sustainable without this arbitrary TAC. These 4 month season closures are killing us! (and we were already dying!) The fish are doing fine - save the fishermen!
- The 241,000 TAC poundage for everyone that has a BF license in the state of Hawaii. There's not enough pie there to cut it up in my opinion. I'm the only person on Kauai that solely makes living with Deep 7 fish. Only and no other job but fishing and deep sea 95% of all fish.
- Like I said before, there should have only been a TAC for onaga and ehu. I do not know why they lumped all 7 fish together. But since the entire bottomfish complex was taken off of the overfishing list in 2008, I do not think we need a

TAC. I think a TAC does tend to cause a race for fish at the end of the season. And it forces you to fish in rough water. I feel that perhaps the landings should be monitored and if they approach 500 pounds which was about the average yearly landing before the TAC, then shut the season down. If there is no TAC you remove the mindset of the race for fish. I have said all along and Justin has seen, that most of the highliners are gone or are about to go out of the fishery. And for the most part there is no one moving in to take their place. So in a few years the fish will be just fine because there will be few experienced fishermen around to catch them.

- When you make a TAC people rush out to fill the TAC. So I think the TAC puts more pressure on bottomfish.

Highliners vs. Smaller Boats

- I believe the vast majority of Deep 7 fish are caught by the *true* commercial fishers (see question 18) so it is only they who should be subject to reporting, monitoring, and any TAC. Forcing recreational/subsistence fishers like me to compete with them under the same TAC is useless in sustaining the fishery.
- There needs to be a cap on individual commercial fishermen, only select few make up most of the TAC!
- I feel the larger, long range boats hog very large portion of TAC and squeeze out smaller operations.
- Big boats can fish in weather we cannot hence TAC is reached while we're confined to port. 2010 = 4 months of better weather months closed as TAC is filled early by larger boats. My investment of more than $50,000 can only be used for uku. My grounds have always been the fingers of Penguin Banks, 100-150 fathoms ledge at Kaena Point and off B. Pt. Two of the three is closed to fishing all year, bow B. Pt. closed for 4 months.
- Your TAC should not be applied to small time fishermen. But stop the *Big Guy* raping our ocean.
- I think a TAC should be made. Should separate local (small boat) commercial fishermen from the bigger (ship) guys.
- The TAC was designed for the big boats which are depleting our resources. The State wants to do quotas for the fishermen that show records of Deep 7 bottomfish. State wants to give these big boats the large quota but decrease their quotas. They're the ones that are depleting our resources and should be restricted from fishing bottom Deep 7 fish in certain areas.
- Simplify with a closed season and a TAC *only* on the *true* commercial fishers - don't hassle the recreational/subsistence guys with overkill unnecessary licensing and reporting. A TAC on *only true* commercial fishers can be simply enforced and monitored through UFA auction block and fish market reporting.

Multi-Island

- What if the TAC was separated from the MHI and NWHI? The TAC has increased over the past 3 years and may be sign of fish movement to look for feeding grounds.

- Higher populated islands take this major portion of existing TAC. On my island not that much pressure on Deep 7.
- The TAC is good - but its structure is wrong. Hawaii is made up of islands. Each island should have its own TAC.
- Each island should be independent - TAC, pounds.
- Very unfair to bulk quota by adding all isles/should be by isles.
- All islands should differ in allowable catch.
- There are other ways to manage the industry besides a TAC. If they divide the TAC by each island and allow the fishermen on their island to catch their limit.
- Each island should have the same limit.
- Each island separate!
- Each island should have their own TAC. Other islands are filling up the quota, and Lanai hardly any. Some of us try to catch more for kau, kau. If get plenty, then we sell. That's why I say separate TAC for each island, check where fishes are sold to. Lanai hardly has a market…
- A TAC for all islands does not prevent over fishing in individual islands. Right now Big Island severely overfished and that is why I don't fish bottom very often.
- Separate TAC for each island exempt (Lanai) catch fish for kau, kau.
- Bottomfish on Lanai, hardly catch. Outside islanders fill our quota.
- I disagree with the TAC program for Kauai. I don't feel that there is a shortage. I don't deep bottom but do palu ahi the deep ledge and see all the bottom fish at the 60-150 fathom range.
- We are all individual islands, check past records and see what island is catching most of the TAC fishes. Hon, Maui, Kauai, Molokai, Lanai, Hawaii, check which island is filling the quota for TAC. I strongly believe Lanai should be exempted from the TAC quota. Other islands are taking the quota from Lanai. If all islands had their own quota, I would think Lanai would be able to fish all year round for TAC fishes. Hardly anyone catches fish here on Lanai to fill quota. Lanai, in my opinion, should have its own set quota or be exempted.
- The number of commercial fisheremen on Lanai who go for Deep 7 fishes are few, but those of us that do go, there's no market like on other islands. So please if you would exempt Lanai. Mahalo.
- If a quota was set island by island based on stock abundance and closed when quota reached, then we would be ok. Now people fish and don't report catches because no enforcement. I wouldn't be surprised if the actual catch is 2 or 3 times as high as reported.
- Exempt Lanai, we don't catch enough TAC. Fishes no more market.
- I think that Oahu/Maui take an unfair amount of the TAC. Smaller islands with fewer fishermen have more productive grounds with less hours fished.
- Each island should have the same limit for [illegible] fish. It should not be decided by total weight. It is unfair to commercial fishermen. This way you don't have outsiders coming in and selling their fish closing our fishing time.
- The TAC limit should be different for each island - I am in from the Big Island - Puna side - very steep drop offs - small volumes of bottom catches - most of the time - used just to eat or recover expenses.

- The area I fish is on the Kohala Coast of the Big Island. We have very few bottom fishermen fishing this area, yet we are subject to closure because of the large boats in the Northern islands. I feel each area should have an individual quota.
- Exempt Lanai, no market, hardly catch.
- Consideration should be given to setting TACs by island and even East/West side of Big Island.

Suggestions

- A TAC for each Deep 7 species. Ex: Onaga 80,000 / Opakapaka 110,000. Right now looks like opakapaka make up most of TAC (so opakapaka might decline first).
- This whole TAC thing started because onaga and ehu were experiencing overfishing, they said. So if there has to be a TAC it should be for onaga and ehu only. And we could catch the other species and keep our markets going.
- If we must have a TAC system based on scientific evidence (NOT best science available) then the seven species should have their own TAC. IF!!! We are overfishing, the present system of "lumping" all 7 together could result in damage to one or two species before we notice a decline (even if we never reach the TAC limit).
- Should allow recreational fishermen to catch Deep 7 for consumption use when not in season.
- There should be no closed season for subsistence fishing.
- For home consumption, no TAC.
- We need to find the full time commercial and separate the TAC so recreational don't help to reach the TAC. Recreational person has another job and its just his/her hobby.
- If a TAC is to continue, fishermen should be (advisory group) consulted prior to setting a closure date. They know existing conditions - weather, bite, who's fishing, etc. (Advisory group of at least on highliner per island)
- I am 62 years old and have fished commercially for more than 25 years part-time. Seniors shouldn't be restricted; we only have a few more years to fish (too old).
- The TAC should support and align itself with the spawning periods of the Deep 7 (June through October, when the roe are large, bottomfish are more vulnerable because they school up to mate.)
- TAC limit based on science
- You people should go *out* on local boats and see for yourself instead of making TAC according to the fish/catch report.
- I think TAC should be customized to specific fishing areas. Biomass measured in specific zones. Currently in Kona, monchong and uku are the only species caught.
- Let's monitor the current TAC regime and evaluate after 5 years with a survey vehicle specifically designed to obtain bottomfish response *after* adequate analyses of available science has been discussed with BF (who are a known population).

- Instead of a TAC, seasonal fishing should be absolute. If closure is from April to September, it should be absolute no matter if the TAC is not met. If the TAC is met within the open season, then it should be closed.

Bottomfish Restricted Fishing Areas

Comments/Suggestions

- We have certain areas on the island (Hawaii) such as Makalawena that get fished out by a combination of commercial/recreational as this year. You put moratoriums on areas where no one fishes vs. areas heavily used [illegible] in decimation.
- Close overfished areas/allow fishing in areas with lots of fish (total and size average).
- Regulate only calm water fishing spots. Spots the most often fished.
- BFRAs on the Hilo side should be open and closed every two years, rotate accordingly.
- Old BFRAs should be open after 7 years while the most fished areas should be closed for 7 years.
- The olds and new BFRAs - I rarely fished in those areas, so it really didn't affect me, but on rare occasions when the area was open (way back then before the closures), I did not have much success.
- Closed areas such as Makapuu always have had a strong stock of Deep 7 fish, and there are many areas to fish there, especially for small boat fishermen like myself. Now that it is closed, with no opening in sight, we are extremely limited to where and when we can fish, weather being the greatest natural limiter of fishing days.
- Why is closed areas made if bottomfish are swimming miles in our state? (67 miles)
- I don't fish in restricted areas so I wouldn't know if has replenished from being closed.
- Old BFRAs and new BFRAs - Tagging shows fish move in and out of areas (fish on the edge of areas).
- Closed bottomfish areas need to be reopened and open bottomfish areas need to be closed such as Waikiki is every other year.
- For Maui, why is there more areas on the north side closed? North shore is rougher. The south side needs the protection.
- BFRAs should be rotated after a few years.
- BFRAs are state imposed! What are they doing in federal regulated waters?
- Not sure if changing BFRAs every year is possible, but maybe you can look into it. I think open areas are overcrowded.
- I would like to see the restricted areas opened to see if the restricted fishing has improved the size/quantity of the fish. Open the restricted areas and every 5 years, let us fish the area then close it again for another 5 years to restock.
- My answers are based back in the 1990s. I sold my bottomfishing boat because of all the restricted fishing area. They say we fished out one area but look at the

tagged fishes, they traveled 67 miles. I fish days and nights and the schools of opakapaka traveled away from the house that I was fishing during the same day I so I moved to different locations to find the fish.

- Rotate BFRAs on east side of Hilo every 2 years, our BFRAs restricted to a minimum of 5 years. It's too long a period for that area to be restricted.
- Closed areas should be rotated and not kept closed for long periods of time (5+ years). Closures are good but they should be opened to harvest every few years or so. Bottomfish areas could be divided and numbered like a hunting area. Prior to each season we could decide which areas to harvest, based on the prior year's data. If we harvested too much from any one area, it should be closed for a while to allow the fish to repopulate, unless that area has the ability to sustain what is being caught.
- Fish stocks should be returned to BFRAs so the area can eventually be opened and other open areas can be closed to rotate stocks.
- Move the boundaries of the no take zones every few years and especially at Kahoolawe - which should not be a no take zone all the time.

BFRA Assessments

- I have never seen any studies from the State showing any overall change from areas they close.
- The State didn't give any information on the BFRA. I personally don't think the BFRA doesn't work.
- Results from any BFRA monitoring is not known by the public. The State does not let the public know if and when they do any monitoring of BFRAs.
- BFRAs are not working - no studies of effectiveness conducted by DLNR - No known stock assessment ever done.
- How can you tell if the restricted areas are working if you don't check on the stock to see if it is working!
- Not enough studies done on BFRAs.
- No follow up research /info to areas within BFRAs!!?
- Was the BFRAs (old and new) ever evaluated? I'd like to see the results if they were.
  Since bottomfish are slow growing, was a few months of closure really effective? Results? Evaluation?
- No baseline data prior to establishing restricted areas; hence, after all these years effectiveness of this system is unknown.
- Have DLNR complete the follow up study of the effectiveness of closed areas.
- More studies to see if closed areas get better with time or if they were never good to begin with because of bottom contours (lack of housing for fish).
- No data on condition of area-closure.

Support

- I think it is good now you people restricted spots around.
- Closure should be longer - if not commercial bottom fishing will be a thing of the PAST!

- Area closures in heavily fished spots such as Penguin Banks make sense.
- BFRAs work! There are some areas that are not BFRAs but are hardly ever fished except by the "Big Boys" who clean them out and use up the TAC.

Oppose

- Need better stock assessment. Get rid of state BFRA!
- Do not support BFRAs.
- Nothing is valid. Managers do not even know where bottomfish go or come from. If fish migrate transocean, restricting U.S. fishermen will only destroy U.S. fishermen.
- By closing one area other areas get overfished.
- Sometimes the fish migrate out of the closed areas and into an area where there are lots of fishermen. Better to not have closed areas to spread the fishermen out instead of wiping it out in one area when the fish migrates into an area with lots of fishermen.
- Old bottomfishing areas were never enforced well. New bottomfishing areas are regulated by nature both on the Big Islands. Section K and Section M is a dominate trade wind area.
- Dissatisfied with old BFRAs because the State said they would open them after 5 years and hasn't.
- The BFRAs are not effective at all. One reason is that the State never done any studies on these BFRAs from 2003. Another reason is the State took data from the CML's to make these BFRAs, not actual studies done on these areas. Where is the data showing that this is a breeding area or is this just a feeding area? The fishermen really need these answers to start supporting these BFRAs. I don't support this 10% on the new or the old BFRAs.
- I think BFRAs should be effective only on the "Banks" or far away spots, not coast line spots. Most closed spots are only too flat. You don't catch much or large fish there. Parts like "Penguin Banks" are the breeding, areas. The fish we catch there are a lot larger there. For the last 4 years, I almost totally stopped fishing for Deep 7 due to closeds. Now, everyone bang-bangs with each other. That's *not good*.
- The BFRA's limit a fisherman's ability to rotate his own spots. Instead of everyone able to rotate their spots, so they don't overfish them. The weather, tide, and appetite of the fish are hard enough to work around!
- BFRAs still the same since its inception. No rotation? No management?
- When you take something away and fail to give it back you lose trust and good will.
- There are too many restrictions and area closures. We, in Maui County, have the best bottomfishing grounds in the state of Hawaii. "No more closures and restrictions."
- The closed areas are ridiculous. Why open areas where everyone has access and close areas that get less pressure if you want to reduce catch?
- BFRAs are not effective.

- BFRAs only shift effort from one area that leads to more effort (boats) to open areas.
- Areas that are open to fishermen, fish stock will be depleted because everybody will go there. You will not accomplish what you're trying to do by creating closed areas.
- The water is bad and we try to rotate our spots, but are limited by the BFRAs.
- No restricted areas!
- Open all BFRAs it don't work! Its fish it before and after, fish did not get bigger and caught less after it open.
- The closed areas should be eliminated.
- Some tagged fish have been shown to migrate vast distances in the main Hawaiian Islands (opakapaka). Areas, such as Makapu'u, should be re-opened so small boat fishermen have a greater opportunity to catch fish also. I don't agree with the closures of certain areas at all because of several valid reasons:
  1.) Hawaiian waters are generally rough, with the trades blowing 75% of the year, so it naturally limits the amount of bottomfishing days already, especially for vessels under 25 ft.
  2.) When the winds are calm, the window for the fish to be caught is actually only a couple of hours, because the current changes with the tide, and the fish move.
  3.) Deep water bottomfishing requires expensive, specialized equipment, so not every boat is knowledgeable or willing to do it.
- The state BFRAs do not work. We need to have them removed. Fish do not hold still; they move where the food is.
- Bottomfish migrate so placing restricted areas does not do anything to promote a sustainable fishery.

BFRA Enforcement

- There is no enforcement on any of this.
- I feel the closure of BF areas is ineffective due to no enforcement. South point is one example!
- Unless closed fishing areas are strictly enforced, day and night, with stiff penalty for violations, all closed areas should be opened until authorities can enforce closure.
- People still fish in closed areas. Not enough enforcement.
- People do not follow the law or fishing areas, no enforcement.
- *No* enforcement - from my experience!
- No enforcement, people are fishing in closed areas.
- The State made all these closures, restrictions, and were not able to enforce these areas. And there were fishermen fishing in closed areas because there wasn't any enforcement or water management.
- There is no enforcement!
- If no enforcement on the water cannot be effective.
- When laws and restrictions are enacted it hurts only the law abiding fishermen. When transiting areas closed completely, at night, I pass numerous boats fishing.

I fished these areas for more than 50 years and feel unless laws are enforced, all these regulations are an exercise in futility.

- All fishermen know, no one is actively enforcing the regulations.
- Not enough enforcement - people fish in closed areas anyway and do what they want. Nobody checking up on fishermen.
- If compliance is voluntary, people will cheat without true enforcement.
- BFRAs do not work!! There's no enforcement (only a private reserve for the people who don't follow the rules).
- Need to have better enforcement of BFRAs. Need to educate all of the DLNR officers to all of the rules. A lot of them don't know the rules that are set.
- Lack of information and *extreme* lack of enforcement make these questions useless.

Don't need TAC and BFRA

- TAC works better than BFRA's.
- We were told that when TAC program was in effect all closed area will be open. Looks like you just closed more area.
- If using TAC system don't understand why there are still closed areas (BFRAs)
- Since the TAC program, why haven't you open-up all of the closed areas? To me, it is just putting more pressure on the other areas.
- My opinion is if they are going to close bottom 7 for 3-4 months at a time, open all closed areas also for 3-4 months.
- I don't agree with TAC program - 3-5% of bottomfish areas were closed on different islands and the only place I fish out of Upolu Point. State closed 15% - that's almost 30 miles of coast line 0-3 miles of Deep 7 bottomfish I lost. Upolu Point is the only place I fished for Deep 7. Since the closure I haven't been able.
- I think the TAC is a good idea to maintain fishery but I don't support the closed areas of Hawaii. It should be either or - not both. And you don't have any info on the progress that the closed areas have. Open it back up.
- BFRA - are regulated by nature (weather, wind, current) - south point kohala. People are still fishing BFRA -TAC works better.
- If you are going to limit our catch, open all close area.
- BFRAs a lot of areas are now fishable due to extreme weather currents, etc. If there's going to be closure all sites should be open during fishing season.
- Open all areas but stick to seasonal closures and TAC limits.
- It may be best to open all areas and close all when the TAC is reached. Fish travel in and out of closed areas as your own studies show.
- TAC is logical choice since enforcement necessary [for BFRAs] is not feasible.
- If there is a TAC, there is no need for a BFRA. You take fish from every area, then every areas gets its same if fish removed.
- If there is a TAC in place, it makes no sense to place BFRAs. This creates a false TAC in the sense that an accurate numbers cannot be reached due to not being able to fish in BFRAs. Where are Maui's BFRAs? Very unfair to Oahu fishermen.
- The TAC is BFRA in itself. We don't need both.

- Why are there BFRA when there is a TAC in place?
- No need for the BFRAs - have TAC.
- Open all areas so we can fish where fish are/open season means open!! No closed areas in open season.
- TAC is ok. Restricted areas are bad. Restricted areas force fishermen to gather in small areas. Open all areas and when the TAC is reached, close season!
- Every area should be open during fishing season, plus you can't go to every area all the time. As a fisherman, I can tell you there's a lot of variables - weather, current, winds - so it's not like you can fish every trip.
- Open all closed area. You got the TAC program and that's enough You don't need to keep closed area closed all the time.
- We the fishermen have a TAC each year. We do not need a BFRA.
- I agree with the seasonal closure but when the season opens, open all BFRAs because too many boats are fishing in one area.
- Since we have TAC, State should open all closed areas (restricted areas).
- The state and the federal agencies that look after our bottomfish say that they are on the same page but the State has BFRAs and the Federal has the TAC. Let's have one or the other but not both.
- I agree with TAC limits, but what is the right lbs to set this limits? I don't and strongly disagree on the BFRAs because you are pushing fishermen to fish in the same area. Therefore, impacting negatively that specific area, I believe all areas should be open. Spreading out the bottomfishing impact on open areas and closing season when TAC is met.
- Basically I do not support any form of TAC or BFRAs. Since there is a TAC there shouldn't be any BFRAs. I don't think BFRAs have been evaluated and therefore should be eliminated.
- I think TAC is a good thing if kept at a regular number. I don't think the area-closure is any good.

Other Past Management Measures

Bag Limits

- Not fair for a non commercial fisherman to take only 5 of deep 7 fish home for family and friends.
- Recreational Deep 7 Bottom open all year with 10 fish per boat limit.
- I bottomfish only to eat and share with family and friends. I have a commercial license only so I can catch more than the recreational limit per trip.
- Bag limits for non-commercial bottomfish may cause more bottomfish fishers to obtain CMLs.
- Bag limit for non-commercial fishermen good idea, but need more enforcement.
- No one will/or is enforcing it (Bag Limits!!).
- Bag limits - Do I keep throwing them back I might catch a bigger one?
- Do not understand why recreational fishermen are restricted. I would guess that commercial impact should be controlled to be more effective.

- Bag limits and other requirements are only effective if enforced!
- Bag limits for recreational fishermen should be increased.
- Enforce Bag Limits at small boat harbors by setting up a hunter tag station and have Docare inspect non-commercial catches so people will know the limit.

Non-commercial Licenses

- Non-commercial permits - great form of state revenue (might stop people from fishing?)
- Why even ask about non-commercial permits, family times are hard enough. Most won't be able to pay yet another fee, fee, fee, fee. It's all about fees.
- If fishermen are only fishing non-commercially for providing for family then don't regulate them.
- Non-commercial BF permits only if not Hawaiian. Need to buy license for fishing money goes to Hawaiian people to maintain resources land and sea.
- Non-commercial bottomfish fishermen fishing in state waters are not required to report. Only if they have a federal recreational bottomfish permit.
- Non-commercial reporting should be simplified to boat captain only. Reporting report could include # of lbs caught and also # of people fishing for day.
- Increase commercial licenses fee to support enforcement of regulations.

Catch Shares

Comment

- I am unaware of any real fishing communities, although Milolii claims to be, what really happens there is more drug related than anything else.
- Fish quotas should be given to full time sole income fishermen. If my quota is met before the year's over I could build my quota someway to higher quotas. 95% of my income comes from deep 7, 5% other fish. I've worked other fisheries in my lifetime: flagline tuna, albacore for the cannery when Kewalo Basiin still had Cannery. Been doing bottomfishing 35 years now. It's a good old man fishery. I'm 58 years old.
- Need to know more about how the catch share plans are laid out.
- Only best survive. If you cannot fish then make way for someone else.
- What you are doing is good - the fishery needs to be shared by all - not a few - management is key through education of individuals - it is our Hawaiian legacy to have access to the fish. Thank you. It is ALL of our resource - not just for a few!
- I don't know enough about this "catch share" program to comment.
- Quota should be set on individual catch history and adjusted every other year for a more balanced structure. Some years are better and some are bad.
- I have no opinion because I don't know how a catch share system would work.
- For one thing catch share would be very hard for me because I keep maybe 50% of my catch and sell some just to pay expenses. But it might work also, I'm not sure.

- My son has fished all his life with me. He's not required to make fish catch as I'm captain and make the report. Under all these rules he can't take over our business when I retire. We need to do is first take away all bottomfish and fishing licenses to people who never fished a day in their life. About 2,000 licenses. They can't sell them so give them up!! They can go recreational!!
- IFQ's are fine for commercial fisherman, but for people who fish periodically, I think it would hurt them.
- I never heard of or know of catch share!
- Instead of going after an individual, cooperative, hui, or "fishing communities," go after the vessel. Vessels that are taking the majority of the catch are more easily tracked, monitored, and managed by regulations, i.e. limiting catch. That way, the boat that goes out rarely and catches little will not be penalized because certain commercial boats take large portions of the quota.
- Let fishermen fish without any "quotas." When the TAC is reached, close the fishery and enforce the closure. Catch per boat varies yearly and for each trip. A "mediocre" fisherman, like myself, might get blessed on a particular trip and might disregard my "quota" for the day and violate new "laws."
- Need to see how Hawaii's catch share system is set up (needs to be fair.) Too much politics/big business taking over.
- Catch shares can work but the Costello et al Paper touted to prove the work is flawed! It's the newest "Religion" and some proponents are dogmatic. It's a tool worth considering but it gives the downstream revenue from a public resource to individuals and makes new entry difficult if not impossible. In Hawaii, the cultural value of sharing Deep 7, even at low catch levels is high, in some ways higher than the economic value. Access to that sharing and some level of participation in the fishery is important. It's more important to share the catch widely, in customary exchange and non commercial transactions than to give a more narrow sharing to the commercial highliners through "catch shares." Giveaways hurt the part-timers and the community!
- Individual quota for full time commercial fishermen with current fish report not with years passed because fishing was better then and give the new incoming fishermen a chance or maybe set a two years trial and go off that so if you want a quota go and earn one.
- Not sure what it is.
- Need more information.
- Do not approve of catch share unless each fisherman gets an equal share. Those who catch the most now are doing the most damage. Hawaii constitution said the people own the fish, so you would think each person should get an equal share.
- Individual quotas should be based on a long term catch history, and I think a lot of people lie about number of crew members on board.
- Quotas for each type of fisherman must be determined? And defined: Commercial - making your living or "x" amount income. Recreational - small amount of sales to recoup expenses.
- How would a fisherman adjust his/her quota from year to year based on seasons varying because of weather, difference species migrating in and out of fishing grounds and fish being out of range based on distance from port, etc?

- People would be buying other people's share.
- It is difficult to support catch share without more info. Who decides who catches what, or which rules are implemented?

Support

- Only individual quotas so I can catch my share when the time is right for me!
- I believe in individual catch totals for highliners who help management with research and in the summer months.
- If done where I could still make a living I would consider support.
- Support catch share as long as Hawaiians get their share!
- Limited Entry per Island. Full time only. No area closures.
- Scenario: My boat experienced fuel problems and cost some major dollars to replace injectors on a new OB motor due to foreign object in fuel. Boat stood in line to be repaired for 4 months from Aug-Dec 09. Lost out on some fishing action. Catch share may be helpful to fisherman who experiences some mechanical problems and be able to sell off his individual catch share. (It's only my opinion.)
- I can agree on setting an individual quota for each licensed fisherman like it is with salmon for example. Another problem is there needs to be a program set up to rid the ocean of ta'apes and rois which are also destroying populations of fish. Like I said earlier, if you want the population to come back, control what can be bought and we won't go and catch it!
- I would suggest a limited entry per island for those of us that have put our heart and soul into this industry.
- [Suggestions] Limited entry.

Oppose

- I support a TAC. I see a possibility of IFQ "catch shares" for a small core group of highliners only if there is significant set aside for other sectors. Cultural value needs consideration. I'm generally opposed to catch shares.
- The local fishers is not big enough for a share program?
- "Catch share." No. No. No.
- Catch share is not fair to newer fishermen and our children. The TAC and complete closure times should be fair enough for everyone.
- Catch shares offer no benefit in this fishery. They are inherently unfair and will result in harm to the fishery for no purpose whatsoever!
- I support the TAC method of management for the bottom fishery.
- This is all bullshit!! The State is the one that screwed it all up by bringing in the ta'ape and roi, etc.
- Only big time commercial would corner market.
- I don't support "catch share." I much prefer TAC.
  Would like to keep TAC system vs. catch share system. Problem again is monitoring catches. Also issue with catch share is problem for fisherman when his boat is under repair or if he gets sick. This could mean disaster for his allocation for following year (period). Also, if a person like myself decides to

retire from present job to enter the fishing business from part time to full time, I would be limited to what I can catch.

- If we have to go with any management system just stay with TAC.
- I do not support catch share because the boat is small, and when we do want to bottomfish, lots of times the weather does not permit us to do so.
- Catch share systems work when you are splitting up metric tons of fish. In Hawaii we are only catching thousands of pounds. Catch shares will not work.
- I believe a limited entry fishery is very unfair way to divide up a resource which should belong to all people equally.
- In this economic crisis this added expenses for manage is a waste of taxpayers' money. Secondly, a TAC is bad enough to people who fish for a living, by imposing this catch share more people will be in financial trouble. Do we really need all of this? These green peace people should mind their own business!!
- I don't support catch share because we are not dealing with a huge biomass of fish. Our bottomfish fishery is dealing with 200,000 lbs to close to 300,000 . We aren't dealing with millions of pounds like the Alaskan fisheries. It wouldn't benefit the commercial fishermen for one reason that is a bag company or cooperation could come and buy all the shares and there goes our living, all the years it took for us to learn this trade gone. Don't support catch shares 100% because it doesn't support the future generations of fishermen.
- 1.) We in the MHI don't need the catch share program. We use the hook and line system. 2.) Our catches are too small for the program to work here.
- A catch share system can never be equitable nor can it be enforced.
- There is not enough fish in Kona to support such a system. There used to be fish (opakapaka, etc in quantity). Research should target the whys of the decline.
- Catch share program…No! No! No! It's just a matter of time before big companies get control of a bigger and bigger share of the TAC. Example: I have a license to catch 20,000 lbs of fish, brother has a license to catch 20,000 lbs of fish, 95 year old dad, my 6 year old daughter has a license to catch pounds of fish and they all work for my fishing company. If you give a boat a TAC, companies will just register as many boats under their company to increase their TAC. A catch share program will not make it fair and just serve a few people.
- It will create the super fishers, the fleets that will wipe out all the fish!!
- Catch share are not applicable to Hawaii's small unique fishery. Mainland practices should not be used in Hawaii.
- NO ONE special interest group should be allowed special quota allocations.
- Catch share is not a fair system for new fishermen.
- Although I'm not familiar with catch share program, by reading the above (#59) I do not think I could support anything like that.
- I don't think it's fair because maybe a beginner fisherman might not catch much. But as years go by, he gains more experience and knows grounds better, his catch might go up.
- I think it would be wrong to go to a system of catch share. I would support quotas worked out by NOAA based on statistics of the whole fleet. The amount of fishing per year is often dependent on health, financial, etc. problems.

- No real energy to want to go back to flagline, young man's fisheries. Concerned that if you go to a quota system that I will not get large enough quota for Deep 7 to make it anymore.

  I'm not too enthusiastic on these coming laws and TACs and quotas because of what all the old timers used to tell me, and my father and grandfather. Prove me wrong and let me make a living. But I see the door closing and no real solutions. The pie's so small and plenty of fishermen who all want a slice so I'd hate to think that the few who make a living fishing Deep 7 end up with such a small share can no longer make it. At present time, I can still make my living doing this, but I fear with new laws I will not be allowed to fish very long season.

  If my season gets much shorter than 8 months with lower TAC or quotas, I gotta do some other type fisheries, which may not bring in enough to survive. I would like you to give me an idea of how all of this is gonna come down and also what kind of poundage I would realistically be alloted in Deep 7. The years vary in amount of trips I make because of weather and sometimes my health. But average trips and 100 to 1400 lbs onaga a trip if ok, bad trip 700-800 lbs to give you idea of each trip.
- Don't give it [the bottomfish fishery] away to a select few but keep it open so those who enjoy fishing have an opportunity to eat good fish and offset some of their fishing expenses by selling part of their catch. It is better than 100 people enjoy recreational/commercial fishing than for 1 or 2 people to have a job fishing. Having many people participate in the harvest is not the most efficient system in terms of cost per pound of fish harvested, but there are many tangible and intangible benefits to the community and the islands as a whole.

  I live in Alaska part of the year and there are limited entry permits for salmon and individual quotas for halibut and some other species. Over time many of these permits and quotas have been purchased by individuals who are not residents of Alaska. These transients arrive seasonally to make "their" harvest and then return with their profits to their home in the lower 48.

Enforcement Issues

- Boats with no BF on them are catching more than the recreational limit. No one checks.
- I never see DLNR officer checking anybody's catch.
- Almost all fisherman has a license. Not all report total catch.
- The overtaking of bottomfish is totally due to lack of enforcement!
- Need of manpower to check on restricted area and catches
- How effective can it be without proper enforcement? Hawaii should use Alaska fisheries management as a model!!
- There appears to be no enforcement for recreational and commercial catches so placing limits is ineffective.
- Our agencies here on Hawaii Island are limited in effectiveness by lack of funding and lack of enforcement officers. We need improved moratorium areas.
- Who's enforcing? What good are laws without enforcement!

- You need more enforcement, not laws.
- Who checks recreational fishermen, DLNR is losing their budget.
- Not enough enforcement. Multiple people on boat not licensed.
- People get away. People sell the fish illegally.
- No one to enforce rules.
- Stricter enforcement from landing fish to licensed fishermen on boats, fishing in closed zones, selling fish on neighbor islands from fishermen during closed times (happens on every island).
- Lack of enforcement due to lack of funding has always been a problem when new "laws" are enacted.
- We need better enforcement. Why makes rules if it can't be enforced?
- Only a handful of full time commercial fishermen, everyone else has full time jobs, incomes, that really don't need the income. Should have strict rules at markets or places of sales, especially for non-commercial fishermen. We've fished for over 30 years! 4th generation of fishermen. Possible loss of our business. A lot of fishermen report different areas fished and catch not correct.
- No possession of restricted species. Strict enforcement!
- Currently bottomfish off the Big Island is not managed at all. I have not seen enforcement, and it is current practice for some to fish in closed areas because that is where the fish are.
- Based on my 20 years of diving on the West side of Oahu, looks like reef and bottom fish has been slowly depleting. I see commercial netting and trapping inside of reefs depleting fish and the only way would be setting controls of fish management in limiting amount taken. It all depends on our DAR and regulation with personnel monitoring. I don't see regulation being enforced. The only enforcement is at Pearl Harbor channel with the US Navy keeping all fishermen out of the restricted area. Lots of fish there!
- Every commercial fisherman knows that enforcement is non-existing; we all see boats fishing in restricted areas, especially common are boats with no bottomfish displayed, yet fishing all day and into the night. For 5 fish? I don't think so. You see these people marketing their catch, incidentally, their catch is many times more than mine. Kaena Point has always been productive grounds and fishing within the restricted area will certainly provide good catches. Any programs the state or federal authorities plan for the fisheries will only be as good as the enforcement. If there are no funds for enforcement then don't start any programs as only the law abiding fishermen are hurt.
- Not enough enforcement. Too much poaching.
- My comments to this entire regulations and rules is that there is no *enforcement*. Those that follow the rules always suffer because no one monitors the cheaters. No sense makes all these rules and regulations if you folks don't have the money to enforce.
- All fishermen know about the decline in fish populations around the MHI. More rules and regulations will not help if they are not enforced. Majority of fishermen will only fish in favorable ocean conditions. Enforcement personnel should be educated enough to know when most BF fishing trips occur and what time of year

have favorable conditions. Knowledge like this will help enforcement personnel utilize their "time" most effectively, instead of making "ass"cuses like "personnel" shortage, insufficient funds, etc. Hawaii poachers only poach M-F 8-5: Same hours as DLNR game wardens work M-F.

- Bag limits, fishing methods, TAC, legal size, seasons need to be enforced *more*! Sick of seeing people come in with fish for not following rules and myself with minimal for being "by the books."
- Enforcement is the worst:

  Selective enforcement based upon race. Any "local" is allowed to rape the fishery due to the excuse "subsistence fishing." There are only a small group of "locals" who rape the grounds, yet they do the most damage and are allowed to because they are *Hawaiian*??

  When I call about a violation, the enforcement officer asks first what his race is. If I say he is "local," they tell me he is subsistence fishing even though he is always the same person always in violation. I can't believe that Hawaiians would allow a handful of Hawaiian violators to destroy a fishery for other Hawaiians. *Do your job. Enforcement.*

General Fishery Management Comments

- I do not support Federal Involvement in Hawaiian fishing methods, areas, or practices.
- Less government needed. Too much spending by government.
- Niihau restrictions better.
- A lot of people don't trust you people. You hold meetings that seem like it is only a formality. The issue has already been decided. We write and speak but with what results?
- If State or Federal agencies are not able to properly and effectively monitor their rules, then they should not create it.
- Gotta know everybody who catching fish.
- State sucks!
- The fishermen I know self manage. We follow the rules even though we haven't been checked or asked to see our cooler.
- I suppose to monitor catch amounts I suppose permits are required for recreational fishermen. But as far as state management, they do what the Feds want to receive funding and the Feds don't have any idea of the condition of Deep 7 stocks in Hawaii; they have not done enough research.
- I strongly support bottom fishery management. A long time ago no one ever thought the buffalos of the plains would be endangered
- DLNR is not complying with their own rules - covering up their non-effectiveness by making more amendments - we fishers are fed up with their cover ups and lies.
- Not dissatisfied with WESPAC: with what comes from the capital.
- The recent departure of NWHI fishing areas is appalling and unwarranted. I have no confidence in Federal regulations. If it is a sanctuary, get the war ships out of there too!

- The Feds and State continue to collect taxes from fishermen (license, trailer, boat fees, etc.) and funnels to their programs or interests. There is no replenishment of stocks or enforcement of rules.
- Too many restrictions.
- I have had many meetings and encounters with DLNR and DAR personnel. Both positive and negative. But at least they are around. A lot of issues are about state and federal waters, but I did *not* see any federal representation whatsoever. Makes you wonder.
- We have been fishing a long time without you guys telling us what and where to do.
- I feel that you folks get grants every year so you have a job. As a fisherman, I have fished most of the main Hawaiian Islands and also fished the NW Hawaiian Islands which are very rich with fish. I would bet none of you have ever been there but still you closed us down and most of you are from the mainland and want to change the way of our lifestyle. Not very fair.
- Once again, the areas that I bottomfish are regulated by the weather, the bottomfishing in this area is very good. Don't get me wrong, there are days where the current is bad and you don't get as much fish as other days, but all in all this area has fish. If you look at my fish catch reports for the last 20 years, it will back up what I am saying. That is why I do not like any fishing regulation.
- It is also frustrating that meetings are held to get opinions and comments and often times decision already made and you read about the closure, etc. the next day in the newspaper. Why go through the motion.
- My experience with committee was at one meeting. They listened to the fishermen, but they decided against what most fishermen were trying to explain. I feel that they didn't seem to listen to what local fishermen want no matter what you decide, the fishermen will lose more.
- I think you are managing it pretty well - our main concern a couple of years ago was that the Superferry would allow O'ahu fishermen to come over here and overfish, but that is no longer an issue.
- Less Government.
- And now we're going to double the slip fees??
- The rate at which I bottomfish, I could not affect the fish population in my lifetime - need *less* regulation.
- Study the old Hawaiians and go from there.
- Although the concept is fairly new, I feel we are headed in the right direction. I started fishing as a boy in the late 1940s. I have experienced the depletion/decimation of all types of fishing - we need to protect this resource.
- Now that everyone has to have bottomfish markings, people are following each other and the secrets of fishing are harder, if not impossible, to keep. Managers are jumping all over themselves about a fishery that they have no true facts about. The kapu zones only ruin the fishery. Ending fishing in the NWHI was stupid. A hook and line fishery *cannot* ruin the breeding stock. The only constructive action by managers was to ban trawls and traps and gill nets for bottomfish because those methods do destroy both habitat and breeding stock. Sharks,

kahala, and dolphins still take fish from the kapu areas and they take more than any humans could with hook and line.

- From 1999-2007 I had great bottomfishing trips. Since 2007 fish are smaller if they even bite. You f'ed up the cycle of life for us and the fish with you "bottom fishing season."
- The SOH-DLNR Aquatic Resources has done and continue to do a great job screwing the fishermen of Hawai'i. Your job will be difficult.
- [Comment on Management Measures] For what, the State is going to do what it wants anyway.
- Good job! The "in place" controls are just and ensures future fishing! Maybe, longer closures are required.
- We can learn from the past. If we want to continue to enjoy the activities of today, we need to ensure measures are taken to protect our natural resources. We owe it to the future generations. Unfortunately, man, if left up to him, will make poor judgments. Greed usually overcomes good judgment.
- Do not create something that you cannot maintain nor manage. Think things thoroughly before making decisions like what our state's main traditions are based on. I have been a fisherman 95% of my life, but over the years fishing is not fun anymore due to all of these ridiculous restrictions.
- Hawaii is not the United States. It's governed and ruled by the kanaka. Follow our ways of managing resources. Look into the past on how the natives had kapu's when and where to harvest what. We had management already established. Just follow our kapu laws of ethical consumption.
- Despite public meetings your management already decides what to do. No sense we say anything.
- Upolu Point closure of Deep 7 bottomfish had nothing to do with over-fishing. Closure of this area has really hurt the old time Kohala resident fishermen. We depend on this area as source of food staple. Even the closure of harvest on green sea turtle. Green sea turtle parts we use for medicinal purposes.

  Both of these topics have been forms of discrimination. The American Indians and Eskimos still harvest endangered species. I am native to these islands and depend on these resources as a means of survival. These areas and items are not overfished because it's always so rough cause of weather conditions. Mother Nature takes care of this area. Our aumakua tkeas care of the island. We take only what we need - not overfish.
- A *great* majority of fishermen feel that surveys like this one is just an excuse to shorten and lower our fishing season and quotas. From what I envision, is scientists and environmentalists trying to make rules and regulations when they don't have enough data and facts. Your flier that accompanied this survey indicated 3 tagged opakapaka crossed the channels between various islands. Question: Do you think the "7" migrates from the NWHI? Lot of fishermen think so! Lot of questions, very few facts and data to answer all the questions. I support the "purpose" of your efforts in conducting surveys, questionnaires, etc., but I would recommend more effort to regulate laws already in effect - more laws will not help!
- You people that make up these rules regulations hasn't a clue about bottomfish!

- I want Hawaii to have as much say in ocean resources as possible because it is one of few regional resources we have. We don't have oil, gas, trees (lumber), gold, coal, successful agriculture, aqua, other resources. What is happening in Hawaii is others with resources (do gooders) and intentions we lose our limited resources to the other 49 believers (states). It is like the Feds telling Nebraska corn farmers to find something else to do, but corn is what they do. Fish is what we do. Why should Nebraska tell us about fish and Hawaii tell them about corn. Hawaii knows what Hawaii needs. Washington knows how to spend money and waste money and time.
- Too many rules - can't do this, can't do that.
- People who make decisions regarding fishing in Hawaii should take into consideration that most people do it for subsistence (income) and a food source for their families. Our island lifestyle, being an island state, makes us surrounded by water, and have learned to depend on this fishing resource.

Suggestions for Management

Miscellaneous Suggestions

- Limit the total pounds of fish taken per trip/boat /day to 300# or less!
- Charter fishing boats not allowed to catch bottomfish or sell bottomfish. In Kona there are a lot of charter boats that fish for bottom fish.
- If Hawaiian koko you should have gathering rights year round limited to 7 fish a day per person.
- I feel there should be a max size limit because nothing is done to save the breeding stock!
- Need to set a weight (total catch in weight per day i.e. 300 lbs maximum per trip!)
- Close NWHI to bottomfish. I feel the fish move up and down the chain depending on food source. You have resident fish and school fish that travel the NWHI are the breeding grounds for bottomfish. My opinion.
- There needs to have enforcement of Bag limits and BF slip tunnel in at port and return date so DOCARE can inspect catches. Rec fishermen only.
- All fishermen (commercial and recreational) should have the same catch limits and restricted areas. The captain should be responsible for reporting the catch and a commercial license should only be required to sell the catch.
- Since TAC and reaching TAC applies to commercial and non-commercial, the fine fish rule is unnecessary. Non-commercial catch will not come anywhere close to commercial catch when data is compiled.
- Regulation required on catches both for commercial and recreational fishing. But fee's collection should help improve fishing areas due to increase fishing, artificial reef, etc.
- Too much work. Keep it simple.
- More studies on spawning periods. Close partial month of year when necessary - use TAC or quota for all fishermen that are commercial or recreational.

- Full-time fishermen should have some type of relief because part-time fishermen fish when everything is to their advantage. A fisherman has to deal with many elements from currents to weather. Current comes nice, all the guys with jobs call in sick. Then price drops because there's more supply than demand - Hawaii's government doesn't help any.
- Charters get paid to go fishing, so why are they allowed to sell fish?
- Just make size restrictions. Now days with the high cost of fishing many fishermen (recreational) stay home and play golf. Only those that truly love to fish will continue.
- Our bottomfishing is totally being wiped out by commercial boats who continue to overfill their boxes to maximum capacity. We need to set a limit on the number of pounds of fish a boat can catch per trip to not greater than 300 lbs/day/trip.
- Keep it open. No more than 2 day fish trips. Reason Sustainable Economic - more people have a share.
- Too many boats with a BF on the side!! In Hilo, only about 5-8% of the boats will fish the Deep 7 during winter due to rough seas! Are you counting all the boats with a BF on their sides?? It's only a small percentage of us who will fish the winter Deep 7 fishing season. Need to get a true count of the real bottomfish fishermen.
- Stop fishermen from selling their catch on the roadside. You can't get a real count on fish catch!!
- I've fished most of my life. More often and produced a lot more in my youth. I'm now 62 years old and feel I only have a few years left to do bottom fishing. Commercial fishing, bottom or otherwise, is a very physically demanding profession. Seniors should not be restricted. It's my culture…
- *Import the Deep 7 species* from South Seas or wherever to Hawaii like they did with ta'apes in the 1950s then we would not have problems.
- I just hope it's not too late - I think with proper management it could be saved for future generations. Maybe shorten the season and set aside more bottomfishing grounds no take - for breeding? I hope this helps.
- I think the minimum size should be larger for the 7 bottom fish. Mahalo.
- Initiate a low fee year round license for recreational divers and use fee funds to support enforcement of regulations. Initiate bag limits on uhus and goat fish.
- My suggestion is to get true factual data before any decisions are made and inform the fishermen of the data. Economic value to the state of HI is in the millions of dollars.
- Increase minimum weight of fish for sale.
- All vessels with bottomfish identification should be certified and cross referenced with commercial license to sell fish. TAC will be met sooner if inspection of incoming vessels are done at the dock/pier. Approximation of total catch is better than nothing - which is what you are getting now.
- Better way of notifying fisherman of when quota will be met, sometime I don't read newspaper or watch news.

- The areas that are overfished should have a large area closed so the fish stock can grow in this area. This system will work. The island of Kahoolawe has been closed for many year to bottom fishermen (a good fishing area) and yet Oluwalu which is an area that is overfished still has fish. I think that the fish from Kahoolawe feed and move to the area like Oluwalu. So if you close an area next to or in an overfished area, the fish stock around that area will get better.
- To re-open closed areas for a trial period.
- Same rules should apply to commercial and recreational fishermen. No size limits as most Deep 7 aren't going to make it back down. Keep it simple. No grey areas or loopholes. As enforcement is practically non-existent, the above suggestions will make easier on EVERYONE.
- 1.) Limit time allowed to bottomfish by 48 hours or less.
  2.) Size limit on boats, e.g. 30' or less. You couldn't stay out for a week w/ his size boat. Sea conditions would monitor the stay.
  3.) Last, if it all fails alternate year closed/open.
- Total BAN on net/purse fishing. They take too much for a select group. Hook and line only.
- Fishery management should follow ancient Hawaiian kapu system - closed seasons *during spawning* months - closed areas should rotate, i.e. closed for 2 years - opened for 2 years - with seasonal closures.
- If the fishery is I trouble or getting worse, why don't you make open season only in Oct-Feb…only for home consumption and in Nov and Dec for sale…close the rest of the year. With the tagging program, now you know fishes no remain in only one area. As for Kona crab - closed the season in May AND til Sept. Open it in Oct. Those crab still is *eggs* in the first 2 weeks of Sept.
- I think the solution is to increase the bottomfish biomass via articial reefs etc. Not by catch limitations. If you create more habitat for bottomfish and bait, it should increase the amount of bottomfish in stock
- First of all, it is frustrating that our state and federal governments can't come to a mutually agreeable plan. To have state closed areas in my opinion is very ineffective. There should be closed seasons for "deep seven species." All areas kept open during open fishing periods. Example: open/close every 2-3 months for bottom fishing "deep seven" :
  Dec-Feb - open
  Mar-May - closed
  Jun-Aug - open
  Sept-nov - closed
  Sept-Feb - open
  Mar-Aug - closed
  Closing areas puts more stress on "open" areas and no proof that it is effective since study was never completed. Should complete study first before making more regulations, i.e. finish what you started.
- Bottomfish regenerate very slowly. We need to close areas that are overfished to regenerate these areas. How long? - I am unsure.

- Better stock assessments. Get rid of BFRAs! Non-extractive assessments are ineffective and technology is not there yet. More cooperative research. Fishermen and scientists. No catch shares!!!
- Please ban sale of ehu less than 1 lb. Min size for sale should be 1 lb at least.
- Put active fishermen on boards.
- 1.) Management should be based on data from local scientists. Data from scientists elsewhere may not be applicable to other areas. One rule for all US areas won't work and may cause imbalance in fish stocks.
  2.) Regulation without enforcement does not work. It ends up with enforcement by agencies such as the Coast Guard w/ personnel that are not familiar with fishes and ultimately ends in useless and costly enforcement. Or [illegible] in state enforcement.
- 16'-24' Boats / 24'-35'/ 35'-whatever. Should have areas that are fishable for our sizes.
- TAC is best option and enforcement concentrated at harbors/ramps for inspection - ult program to raise juvenile (fry) of opakapaka or other bottomfish should be high priority. Ta'ape needs to be targeted and marketed more effectively.
- Enforce present laws but show leniency where violations are for immediate food eating but prosecute violations that seek illegal financial gain.
- Too little, too late. You guys need to start all over, stop bottomfish fisheries for a few years like Waikiki and then assess the fishery.
- People who fish Hawaii that aren't taxpayers. Try to go regulate them. Too many times I've seen out of state or out-of-country fishermen anchored in our waters.
- 1.) Amend the BFRAs. 2.) Leave the catch reports as monthly. 3.) Improve our harbors, if not lower our fees. 4.) Make DLNR accountable for their spending and accessible to the public.
- Maintain and repair our harbors and piers - most boat ramp piers lack acceptable bumpers with nails/screws sticking out from where the old ones used to be, so pose a hazard to boats.
- Boat too small always rough water. Give chance to smaller boats and do away with late fees. Too much on mind to remember!
- Please increase the TAC and get rid of the BFRA's. The TAC is too small for fishermen to make a living, resulting in early closures, and devastating effects on the restaurant industry, which provides our tourists with fresh fish. Stores will have to resort to importing fish from elsewhere, that is not fresh fish from the island, what the people want. The fishing industry is impacted the worst. Today the cost of running a boat and crew is unprecedented; cost has never been so high. The cost of fishing is so high and the TAC is so low, there is no future in CML bottomfishing.
- Enforcement by actual inspections and patrols of boats and BFRAs.
- Ban the giant purse seine and trawler! Watch the fish come back when there are no nets!
- Just making a "no-sale" season will also even the playing field.

- We on Lanai hardly made a dent on the total fish caught. Have more enforcement and exempt our Lanai. Hardly fishermen catch Deep 7 fish. No market, more for have consumption. Mahalo again.
- 1.) "Kapu" system works! 2.) Import big five species from other countries. 3.) Get rid of ta'ape, etc. 4.) Find out why the big 5 are declining.
- You make a lot of decisions without knowledge of the local fishermen that actually study the habits and feeding of each fish and the certain areas they are abundant in. You need to protect the breeding stock first of all to make strong babies. Like humans there are a certain age that we are strongest to produce babies, so do fish. The amount you allow don't matter if you catch the breeders. Last set up a market at DAR for Ta'ape and Roi and sell them for cheap. There are always people who will buy them like Filipinos and Micronesians.
- There are no penalties for all the illegal buoys that are being set. It stops all the fish from coming to the state FADs. They are making our income less and less catches.
- 1.) Instead of closing bottomfishing down once a year, twice a year would be a better alternative, ie: a summer season and a winter season. There would be less of an impact on the community (fishermen, restaurants, fish markets, and consumers) to go for a shorter time twice a year without fish.
  2.) BFRAs - What's the point? If we know that bottomfish move around the Hawaiian Islands (tagging info) fish aren't going to stay in a designated area to grow and breed. Food, currents, mating and temperature make the fish stay or move on. Note: There are areas where young fish live most of the year in large schools. These areas should be closed. Ask the old time fishermen…
  3.) Catch share program…No! No! No! It's just a matter of time before big companies get control of a bigger and bigger share of the TAC. Example: I have a license to catch 20,000 lbs of fish, brother has a license to catch 20,000 lbs of fish, 95 year old dad, my 6 year old daughter has a license to catch pounds of fish and they all work for my fishing company. If you give a boat a TAC, companies will just register as many boats under their company to increase their TAC. A catch share program will not make it fair and just serve a few people.
  4.) Size Limit! Let's try to keep some of the big breeders out there having babies. Maybe 10 lbs and up for opakapaka. I don't know? I know all my fellow fishermen will hate me for saying that. But killing 50 to 100 little fish will never replace a larger female that releases 10's or 100's of thousands of eggs into the ocean. Do the math. If just 5% make it to breeding age. Think about all the other animals in the ocean that feed on eggs in the eco-system. Help keep some balance.
- You shouldn't do anything because it' s managing itself even you guys said stocks were doing well before this TAC even went into effect.
- Some access should be reserved for new comers and new entrants because of the cultural value of Deep 7, some consideration should be given to Native Hawaiians and subsistence right!
- Let us know when you are going to open the closed areas.

- Fees and taxes collected from the fishing community (ramp fees, trailer fees, licenses, taxes, vehicles, etc.) should be used to maintain the fisheries. It should not go to parks, hiking trails, hunting, etc.
- The size limit on Ahi and W&B Ulua should be drastically risen and catch limit for all Ulua.
- Native Hawaiians should have an advantage. Haoles, Mexicans, Micros's need to get out of the water or be charged more. When I lived in the mainland I was charged more for hunting/fishing for being a non-resident and not allowed for some instances. Should live in Hawaii for at least 3 generations to fish!
- Bottomfishing should be regulated more by science than numbers: spawning time be when the fishery closes. March, April, May - most bottomfish spawn. Onaga, Uku, Opakapaka, Ulua, Papio, Ehu all have eggs.
- Put fisherman at top of department who know the fishing industry - not just bookworm. Stop all illegal fishing and illegal marketing. Don't make laws you can't follow because of lack of enforcement. People just push the matter, makes others upset! It does not help at all. Give some of the duties to harbor master, police to enforce.
- Abolish DLNR.
- 1.) Need to regulate the long liners for bottomfishing in waters where they shouldn't be.
  2.) I personally feel they should have done away with lay net fishing in shallow waters for all Hawaii. For our tourist industry (throw net okay).
  3.) Make sure your DLNR are not corrupt (Kauai).
- Commercial fishermen should be separated from other people who just have licenses. Commercial fishermen should be classified as a person who fishes 3-4 days a week or at least 175 days a year. Just because you can own a fishing license don't mean you are a commercial fisherman.
- Get a reporting system that works. Like everywhere else except Hawaii. If you aren't a commercial fisherman, you can't sell fish. This includes Charter Boats! Catch shares that are transferable. Reporting burden on fish buyers, maybe log books. Sport fish licensing and reporting. No catch history, no license. Get rid of DLNR and get some real science with fishermen participating in research and management in state waters.
- *Import* Deep 7 fish live!
- 1.) Bottomfishing should be closed when fish are spawning.
  2.) Limit size catch of Marlin.
- More should be done as far as stock enhancement and habitat restoration, control invasive.
- I strongly feel that our bottomfish need to be Hawaii/Hawaiian branded. Native names commonly used such as opakapaka (Hawaiian), onaga (Japanese), and ehu (Hawaiian) need to have their names associated only with Hawaii caught fish. This will protect the local commercial fishermen from imported fish that are often inferior in quality. I know this is a local and not national initiative, but any assistance you can provide will greatly benefit local fishermen.
- License and reporting for non-commercial. Limits set by individual populations.
- Netting on shoreline overnight/day Micronesian management.

- Exempt Lanai.
- 10 fish per boat all year round for recreational fishermen.
- Recreational bottomfish Deep 7: 10 fish per boat open all year.
  Lower TAC for commercial bottomfish Deep 7 to accommodate above.
- Fishing is a cultural experience and right for native Hawaiians. They must be considered first. We as Hawaiians enjoy our local fish. It cannot be bought or sold to others!! Hawaiians need to be considered before anybody else!! Mahalo.
- I would limit my catch to 500 pounds per year for onagas.
- What about Marlin TAC size?
- Limit monchong limit. Kona monchong fishing is getting out.

Licenses

- The state of Hawaii should limit the amount of commercial license for bottomfishing. The TAC ration to CFL sits about balanced I feel.
- If a new license is to be issued one old one must be terminated.
- It [TAC] will not work as every year there's more fishermen. Raise the cap every year or limit entry for commercial bottomfishing.
- A license should be required of all fishermen in Hawaii, not a mere permit. Hawaii has the largest area of exclusive economic area in the US, and most all of this is in the marine environment. Only two states spend less money on coastal resources. We need to help protect our resources…money generated via licensing can help.
- Commercial definition comment: Earns majority of living/relies solely on fishing - this does not happen in Hawaii anymore. Too many "commercial fishermen" who aren't fishermen. Only place in USA where you plunk down $50 and can sell catch!!!
- Don't allow any new BF fishing license
- There is more than enough current bottomfish fishermen in the state to support the public demand. There is no need for more pressure or more bottomfish fishermen fishing commercially on the species of bottomfish.
- Why don't you *freeze* the commercial fishing licenses? Lower the amount of commercial fishermen. As time goes on, fewer means less. I think Alaska has a program like this. Maybe less fishermen means less paperwork, less enforcement, less people working in the offices, less expenses, and then maybe more fishes.
- A reason why - Do crew members require a commercial license? How are we supposed to teach our learnings to newer pupils and children?
- I would like to propose a system in which a commercial fisherman's license would be given to a person if he or she sells a minimum amount of fish the previous year, i.e. a thousand pounds of fish per year. New entrants would need no prior records.
- Hawaii does not have a bottomfish fishery, it is a fresh fish state. We supply the demand. Thousands of boats supply this demand, not just three or six boats. We already have catch reports. Make every boater a commercial fishermen when they register their boat.

- Persons from other states should be charged more for license to commercial fish. Just the same as if I went to another state and established residency. It would still be hard to get a commercial fishing license - example: California, Alaska, Oregon, Washington. In Hawaii you can just move here, buy a boat, and pay $50, and catch any amount of tuna & bottomfish. The state of Hawaii needs to establish a limited amount of entry into the state. Just like any other well managed fishing industry.
- If a boat and captain have a CML, the crew, if part time, or for fun, should not need to have a CML himself. They have to pay $50 and file a fish report to fish 1 or 2 times a year.
- Too many foreign boats out there. Control the amount of fishing permits (licenses).
- Recreational fishermen need to buy some sort of fishing license for all fishing in the state! Every other state in the US I had to purchase a fishing license in order to fish. Commercial fishing license should be raised to minimum of $500/yr. That would keep the weekends from selling their catch and bring the price down for the everyday troller and bottom guy.
- There are less people who bottomfish than those who are registered.
- I also think anyone going fishing should not pay a commercial license just to go bottomfishing. If an individual is full-time fishing on someone else's boat for a living, and is given fish for him to commercially sell, then yes he should get a license. But if I want to take my wife and daughter fishing, I don't feel they need to buy a fishing license.
- I think commercial boat should pay (even if it's a little more) the fee for the commercial license - not EACH individual stepping onto a boat. There are countless times that a co-worker, relative, friend from mainland, even my wife wanted to go fishing, but I had to turn them down because I did not want to be a recreational fisherman for the day. It is too expensive and time consuming for that.
- Don't waste so much time, expense, and paper on surveys like this. Keep costs down but managers should manage. The State can't afford all this. Sheets of paper, thinner, smaller envelopes, less employees.
- Require everybody to have a fishing license that go bottomfishing. Recreational and commercial. With that you can get a little more accurate report on bottomfish. After a few years of survey monitoring catches, you can either enforce a TAC or extend or shorten the season, weather is also a large factor, so some years you'll see less fish caught. That must be considered into account.
- Bottomfishing commercially should require additional license and fee. Fees should be set based on pound limits. A small time low impact fisherman should pay less than a big time high impact fisherman. License fees:
  0-100 lbs $25
  101-500 lbs $50
  501-2000 lbs $125
  2001-10,000 lbs $250
  10,001-25,000 $500

License fees would supply more money to DLNR and NOAA. Fair to small and large catch boats easy to regulate with catch reports self-imposed total catch limits.

- Definitions for commercial and recreational fishing? I'm required to have "commercial" in order to drop off some fish to the wholesaler to help pay for some of my recreational expenses.

Nets and Traps

- Need to address netters and trappers. These guys do more damage than the hook and line fishermen.
- I gave up going after the deep seven after shrimp trapping was introduced in the 80s. Food for the bottom fish dropped off and the fish were skinnier. I sold off my hydraulic equipment in the 90s. I primarily fish for akule and occasionally fish for uku & ulua.
- Needs mgmt. On TRAPS that are being set every day. I feel that they have devastated inshore/shallow water bottom fishing.
- The only gripe I have, is that these boats with fish traps or crab traps outside Haleiwa, no conservation - put into whale sanctuaries fishing 24/7 - no down time. The shark boats buoys are put on opakapaka ground so now we cannot catch fish in area. The traps had brought in the sharks to the Haleiwa area.
- Shallow bottom fishing is getting depleted by the traps and nets, which should be banned.

Creation of Off Season

- Regardless of TAC the Deep 7 bottomfishing season should be closed June 15 - Sept 1 of each year.
- Just close the season from March to June and try to create a fishery by educating the fishermen instead of regulating the industry.
- I feel that you should have made a total kapu season like the Hawaiians and then open season and survey (not size limit or TAC).
- Forget TAC - Make a season. Find out when they spawn and close season for necessary months.
- As stated before, the season should be closed June 15 - Sept 1. They seem to have a lot of big eggs around that time. From our observations, giving them a break, there are more and larger fish.
- State management in closed areas became a joke. No enforcement meant the closed areas can be fished since no one will know. On the other hand, a closed season will not need enforcing - no brainer!!
- Study when the fish spawn! Close the fishery when they spawn! Open the fishery to all fishermen for 3 months a year. Get what you need. Leave the rest.
- The recovered tag data surprised me how slow opakapaka grow, but the fact that they appear to travel far distance was encouraging. Regardless of TAC details, there should always be a closed season during breeding season for the Deep 7.
- Could also change closed seasons by splitting season closures to several times per year.

- Manage the fishery by opening and closing the season to control the amount of catch. This allows new entrants into the system and does not give away what should be a public resource to a limited few individuals who happen to be in business at the time the decision was made.
- I support seasonal closures (May till end of Aug.). As long as there's *no* closed areas.
- I believe there should be a truly scientifically determined closed season. It should be when the fish are spawning. A closed season would be fair to all fishers since it would apply to all. It would also be simple to enforce.
- 100% open season. 100% closed season.
- We were shocked that the TAC went up and still the season closed on April 20. We feel regardless of TAC…just like lobster and moi closures…these complete closures work for all of us. We suggest (again) complete closure June 15 - Sept 1.
- A *definitive* season with no closed areas and no TAC.
- A set season would be preferred; at least we have a given time close and open. No TAC - I really think that how much study has been instilled for the amount of catch the islands can support (not accurate).
- The Waianae area needs its buoys back! Warren is taking too long got replace the missing buoys.
- Manage the fishery with an open and closed season, so all people have an equal opportunity to participate in it.
- All fish species in Hawaii should have a closed season when they are spawning. Example - mullet is closed from Dec-April. Kona crab, moi, lobster - have closed season when spawning.
- Open all areas for amount of time and close all areas for amount of time. Don't need TAC or catch share. But we need to manage our fish, that's for sure.
- Deep bottom fishing should be closed when fish is breeding (May to Sept.) regardless of TAC.
- The best possible way - in my mind is to not disrupt the fishing grounds during the spawning season - summer/fall. Every country around the worlds closely monitors their fisheries based on the spawning cycles of each species of fish. Fish are most vulnerable because they school up in great numbers and large catches will be made during these periods. It's a personal experience of mine for over 30 years.

Small vs. Big Boats

- I feel the larger, long range boats hog very large portion of TAC and squeeze out smaller operations.
- Boats that can fish for 2 weeks at a time take way too much bottomfish.
- Primary commercial bottom fishermen have to bring home a lot to make ends meet - if it is their primary source of income - could be a problem that obviously stresses the resource.
- If anybody needs management - it's the long-liner usage - when they flood the market - the price goes down for local fishermen.

- Primary commercial put the biggest strain on resource - non-commercial or family use does not - do not allow non-commercial sales of bottom fish would [illegible] it.
- I am very upset on all these million dollar Kona boats troll down and stay at South Point for up to 5 days at a time fishing bottom all day and all night then we see what they caught at Suisan and they do not malama!
- The recreational/subsistence fishers like me have so little impact on the fishery that subjecting us to the same licensing and reporting requirements is totally ridiculous! I've seen DLNR/DAR reports showing that Oahu has about 130 Deep 7 fishers and the 10% of those that I personally know fished less than 6 times and averaged 30-40 lbs per trip last year. It's the guys going every week catching hundreds of lbs that should be regulated, not us!
- I would like to bottomfish more but wind and sea conditions are tough where I fish. There should be a balance, some fishermen take too much. Greedy. I'm in favor of small boat fishing (30').
- Bottomfishing is hard and we need to support the individuals that do it well and not exploit their knowledge and grounds but listen to the highliners who catch and are productive. These people show be acknowledged for their hard work not treated like rapers of the sea.
- I just think bottomfish are only in certain places like our "koas" and it is unfair for these huge vessels to come from "Kona" and "Hilo" to sit on our bottom holes for days to make Kona mortgage payments.
- Don't complicate the system of catching and logging the catch. The little guys aren't making a dent in numbers of fish. It's the full time larger boats that need to be controlled on numbers and places they can fish.
- Full time fishermen should not have their jobs taken away from them. How would you like it if I took your job away?
- Let's see more pound quota's for big long line boats and no fishing for ALL boats during closures. Go after the big boat catching more than small boats catching less and who fish sustainable methods.
- The feedback from commercial fishermen is the most important because they are in the rhythm. They know the most. Commercial bottom fishermen. I can tell you about North-South West side Kona. All you need to know. I don't know nothing about the rest of the state. I target large opakapaka and onaga.
- Large commercial boats and long liners so have restrictions from fishing out these areas. They're the ones that overfish.
- I think a vessel quota is easier to manage. Vessels that are large enough can go to relatively unfished areas and clean-up, taking a lot of the "quota" while the average small boats are competing in areas that are close to ramps and harbors where bottomfish are in smaller numbers.
- Rod & reel fishing is sustainable and always has been. The problem is regulating long line.

Markets

- If you don't control the market, how you gonna control the fishermen? Allow the market to only buy and set legal size. If fishermen can't sell it then they won't catch it!
- The closed season TAC's really screwed me up. No good marketing for uku in the summer months, shipping to Honolulu too high in summer, price not high enough for uku because of the flooded market price of too much tuna and ono in the summer months.
- It would be nice to fish all year long because the restaurants and wholesalers do not close down. So we lose our market share while we are shut down due to imports. Lots of tourists come to Hawaii and part of their trip includes a fresh fish dinner, not an imported fish dinner.
- Price of bottomfish not good when season opening - perhaps due to imports that cover and overtake local fish not being put on market because of closed season.

Exports/Imports

- TAS (Total Allowable Shipped) - *Limit exports*!!! Japan's mass consumption and unrestricted purse seining are killing, not hook-and-liners.
- It is very wrong to shut down Hawaii fishing yet still allow outside bottom fish to be on the markets.
- Restrict import of bottom 7 fish so local fish gets a better price than the prices have not escalated for 20 years!
- We have enough fish to supply our whole state from bottom to pelagic. So why do they allow imported fish? How stupid is that? Our fish gets exported and local people eat imported fish of less quality and even gassed tuna.
- Need to monitor import fish for same requirements as locally catched fish.
- The more grounds you close, the more they import fish, so when you catch fish and think you are going to make a little, you make less – due to imported fish. Imported fish drop fresh island fish prices. P.S. Same for ahi.
- Upolu Point Deep 7 bottomfish is closed? That's 30 miles of our coast. If we cannot fish for deep 7 because of closure, then the State shouldn't be allowed to import Deep 7 fish.

Cultural Considerations

- I'm a proud Hawaiian; my ancestors had the best management program in the world. In today's society we have to implement greed to pay bills. We get no fuel or fishing rights as Native Hawaiian, America ruined Hawaii's resources because of lack of knowledge. I'm not perfect but I'm one of the last full-time fishermen. It's getting very hard with age, stress, retired rich people or charter boats being able to compete with our fish for sale. When you have money there's no stress. One man or small fishing businesses are very unique. Fishing is a way of life, you can't compete hours and wages, it's just your life. It's an honor to feed people with quality fish - very satisfying. I hope my mana is appreciated.

Information Exchange and Studies

Management Needs More Data

- True (actual) data is required for intelligent decisions. Not guesses.
- I do not believe your information is right when it comes to how many fish are in the ocean.
- Given new science and technology and gear choice, another review of affected species is in order…e.g. onaga and opakapaka are genetically indistinct throughout the region ehu/hapuupuu are locally distinct.
- I don't think the current concerns that you have will affect bottomfish populations' recovery. Fishing or over-fishing do not affect fish populations. It is your job to figure what does!
- Let's expand cooperative research activities to engage BF in the management process.
- Research should target the whys of the [bottomfish] decline.
  -ta'ape (strongly suspect)
  -overfishing!! The "good" guys (old timers) are nearly gone now. They used to catch a majority of the big 5.
  -the kapu system is good - close the fishery to allow stocks to rebound??
- I would like to see some studies that relate to how much fish the tropical divers take from the food chain that supplies bottomfish.

Catch Reports

- Recreational bottomfish catch data is highly flawed!! Rec fishermen *do not* catch more bottomfish than commercial fishermen.
- Non-commercial bottom fishermen will *rarely* submit fish catch reports. Without enforcement they will often violate catch limits.
- You don't know people are catching, no enforcement? Your data is not accurate!
- Aside from the fish catch report, management agencies don't really know what actual amount commercial fishermen catch.
- Your fish catch management is judged by what we commercial fishermen submit in our report. What about recreational fisherman catch as all the bottomfish that's unreported?
- When you have more than one person on a boat reporting catches, how accurate do you feel the total catch is?

Miscellaneous

- I'm very interested in participating in the Tag and Release Research Program. As much of what I catch is released due to size. I try to target optimum market size. To me smaller yields higher return while the larger "breeders" don't bring in the price.
- Only bottomfish when tuna fishing is slow. I caught an opakapaka in Oct 2001 that was tagged in March 1994 - was free 2,768 days, 7.6 years. It grew 10.5 inches, tagged SW tip of Molokai. Caught off Hapu Point, Big Isle about 230 mile swim.

- Scientists seem to think they know but the reality of it is we all don't know much at all.
  I went on a sub to my bottom grounds and we learned a lot that having a non fishing scientist would not have thought of. We need to assess the BFRA more with HURL. We need to allow a certain amount of permitted bottom fishermen to work the summer months as prices are best and restart the spawning program at coconut island in which we grow onaga and paka for introduction to our bottom grounds. We need to find and protect the sensitive deep reefs and limit the amount of fishing in those sensitive areas. We don't even know where they all are located. More Bot cam work close to the bottom on top of pinnacles during spawning season. No bait used. Use fishermen for projects. Tagging small paka in shallow areas in winter. Dragging collector nets on top of hot onaga grounds during spawning to collect eggs important.
- I would be willing to participate in helping assess bottom fishing while on fishing trips.

Stock Considerations

Stock Condition

- I fish Big Island west side off airport. Bottom fishing has been nonexistent. OTEC fish pens may have something to do with lack of fish.
- Fish migrate to different areas. It does not mean it's depleted or overfished.
- Bottomfish do not care what state or federal regulators are saying or not saying. Bottomfish multiply and increase where food, water, and environment is good for their young.
- More fishing boats + advanced technology + same area of fishing grounds = less fish!
- I don't find fish where they have been for the past 15 years. Seems as though they moved on. Possibly no one "feeding" them.
- If I remember old bottomfish only onaga/ehu today 7 fish. Why - not all overfished. Old bottomfish all in areas not so fished. Or always rough - self natured control. New bottomfish - areas on big island all in rough water country. Why - don't need to be regulated by govt. Already reg by nature predators porpoise/sharks/walu - summer ahi season. Why target onaga, opaka. I catch large stocks -not overfished. I don't catch like before however still get - they have moved.
- Fish farming (kampachi) waste and food cloud - might be affecting the Deep 7 in the area.
- We are noticing a big difference in the size and quantity of bottomfish we took this past year. The fishing grounds are being depleted by the off-island commercial vessels who continually fish the same fishing holes until it is practically wiped out! How can we stop this!? Lanai is overfished by these off-island boats!! Could Lanai be like Molokai and restrict off-island boats from fishing in its state waters?

- My experience in shrimping with the long strings of traps was eye opening. The shrimps were tasty, but the cost to the environment was very high. Every lost trap kept on killing food for the bottomfish. Before 1980, 20lb onaga were common. Since the advent of large shrimp boats and their large refrigeration capacity, bottomfish catches dropped. It was not the increased pressure caused by fishermen. The fish were just starving to death.
- Over the years I have seen many changes with inshore reefs and fish habitats. My personal opinion is that on Kauai it is not being overfished with hooks. I think it is mostly from 1.) near shore, fertilizers from golf courses and large scale GMO farming. 2.) for deep bottom I think that a large percentage is from sewage treatment plants using injection wells to put their gray water along with bleach, chemicals from laundry mats and swimming pools into lava tubes and underground streams, that most likely come out on the 60 fathom drop off.
- Bottom fishing is a weather regulated industry with lots of variables. When winds are variable for a month, an abundance of fish is caught and when the trades are up, there is a decrease in the amount of fish caught. If areas are closed it should be in places that are in the lee of the islands with normal winds (of 15 mph or less with an occasional 20); not in areas near points in channels with high winds and rough, strong currents. These areas are naturally regulated from wind and currents.

  Most of the deep seven are migrating fish traveling through currents that help keep the bottom fish from being wiped out. It's difficult to keep track of the direction they are moving because of the wide depth range of these fish. I believe fishermen could play an important role in the decision making process due to our knowledge of the industry. Ta'ape and Roi on the other hand, take up a fraction of the depth that the deep seven are in.

  I've seen hundreds of nursery grounds and piles of Opakapaka, etc. while traveling with my recorder on. I've caught live fingerlings and kept them in tanks prior to selling it months later.
- We are a hook and line fishery. We will never wipe out the fish stock because every trip we lose between 6 and 20 fish off the hooks that go back down to join the stock. The State does not want that information as I used to count the ones that came off the hook, and they told me to stop submitting that information. I think that it is relevant information as the ones that come off are usually the big ones.

  I wish you could see all the fish we see on our fish finders. Every spot I fish is loaded. But we only catch the fish that are hungry at that time. The fish are out there all the time and when we go fishing we only have a few hours to figure out what they know - like if the fish will move from one side of the ledge to another. And you have to move too or you will not catch anything.
- I believe aquaculture can help boost fish stock in the wild and supplement the market. Concerns about genetic changes occurring to farmed fish should be researched to see if DNA in fish can actually be altered through diet. (At present fishermen use a variety of chum and bait to attract and catch bottomfish anyway).

- Fish stock should be assessed more efficiently. The traditional ways fish reports, drop line should be eliminated. State and federal agencies have the resources to check stock more thoroughly with submersibles.
- Kahalas are predators and when the test at the auction block stopped and kahala was no longer sold, fishing for them stopped in the 80s and since that time, they have taken over several spots we used to fish.
- It seems to be the general opinion of local fishermen that long-line fishing has made an impact on less bottomfish in our area.
- Most of the fishermen I know, including myself, are limited in the amount of bottomfishing we can do due to area (windward) we fish. Weather and sea conditions dictate when, where, and how long we can fish. Also the size of our vessels are on the small side and is also a factor. If all is favorable, I am able to fish the whole day. I have noticed I can catch bottomfish if conditions are good and the fish are biting. I have not noticed much difference in the size or amount of fish I catch now compared to before and after regs and BFRAs. I bottomfish only a few times a years. Seems to be more sharks around.

Invasive Species (Ta'ape and Roi)

- Ta'ape - major decimation for bottomfish - State's fault.
- Fish like ta'ape have taken over local fish habitat. They should have no size, no limit.
- I've been fishing for 40 years, and notice the invasion of the ta'ape - this fish is eating all the shrimp and food fish that support the deep 7. If all the food is gone, it won't matter how much fishing is restricted the deep 7 won't survive.
- The ta'ape and roi are eating all the babies of the Deep 7. Also the crab babies, I always catch ta'ape at 80 fathoms and they spit out what looks like Deep 7 babies and crabs.
- Ta'ape barf up kona crabs - they are on the onaga, opakapaka, ehu grounds - How can we eliminate the ta'ape, toau, roi? Hawaii scientist got us in this mess - how can damage be undone.
- The introduction of ta'ape and roi has had almost irreversible effects on our bottomfish ecosystem. We're no catching ta'ape in shallow water, down to a 100 fathoms. They eat fish eggs as well as other fish. This leads to the shortage of opakapaka!
- Invest in eradication (control) of ta'ape, no. 1 consumer of bottomfish 7 grounds, food, fish!
- I bottomfished years before ta'ape were stocked in Hawaii. Within four years of that, catch went from 700-1000 lbs a night to 100-200 lbs a night with same fighting pressure. I've caught ta'ape at 120 fathoms at night.
- I feel the ta'ape has been the main disaster to the bottomfish. I don't know how to manage it.
- You need to protect the food source of the Deep 7. I've been fishing from 10 fathoms to 200 fathoms and now notice the ta'ape on all of the sea mounts that the

onaga and opakapaka feed on. The ta'ape feed at night and day. It will destroy the bottomfishing in 10 years.

- The State brought in ta'ape snappers in the 70's and there is no market for these fish. These two species of fish are scavengers. They are eating the young and eggs of all types marine life because they have no predators that eat them. They multiply so fast they can't be controlled now.
- I don't bottomfish a lot but from what I have experienced, get rid of ta'ape!
- Make some kind of kill ta'ape program. Because I strongly believe and experience that ta'apes are eating everything from opakapaka to maninis.
- I feel that it is good that you're trying to control the amount of caught per year for the deep 7 bottomfish. It will help preserve the stock for the future. I still feel that the blue stripe perch is doing the most damage to the fish population in the coastal waters and the deep ocean. More studies should be done on these introduced species and the impact on the coastal and deep sea fish population.

  I've been fishing all my life and over the years I notice that the moi, papio, and other shoreline species are harder to catch. It is partly the fishermen fault of overfishing, but I think the main reason for the fish decline is because of the yellow perch and toa that was introduced back in the late 60's. More studies should be done on these species.

The Nature of Bottomfishing

- I hope you realize that bottomfish do not bite 24/7. If they did there would be no more bottomfish.
- A Hawaiian fisherman must fish for all types of fish when the weather allows, he changes his target species to survive.
- Bottom fishing is seasonal, usually Nov, Dec, Jan. The rest of the time the ocean is too rough.
- The weather dictates.
- Bottomfishing for Deep 7 is dictated by weather conditions and that alone will sustain for bottomfish management. Unless the weather is fair a lot of spots are unfishable, perhaps 90%
- Oahu fishers rarely have the opportunity to fish on the banks, most of the time too rough.
- Here in west Hawaii, our catches decreased cause the currents don't run steady in which the shrimps and all the feed down below isn't there. No feed, no fish. They moved - finding them elsewhere, shallower.
- I very rarely bottomfish. It's too wiped out on Oahu. Kauai, Niihua, Molokai is pretty good so bottomfishing here is too hard for my needs.
- Bottom fishing has gotten so bad I rarely go strictly go for bottomfish anymore.
- I don't target Deep 7. I might try for an hour in the morning after trying for akule. I don't just go out for bottomfish. No can make money like that.
- God is the creator of heaven and earth and, no one can rule mother nature. So I think mother nature has its own way of keeping fish stocks up by having bad weather.

- I only BF during the Holiday season Nov, Dec, Jan or when the ocean is flat. Most everyone else does the same over here on Kauai.
- I have a flat bottom boat and the reason I have done very little bottomfishing is because of the weather conditions. I usually only go on weekends and the weather has to cooperate.
- There is only a handful of people on each island that actually produce lots of fish. That hard to catch because weather and current.
- I believe that those who can do and those that want to don't, can't, or won't. The fishermen I see working work hard at what they do more so the successful ones. I feel that few are truly "successful" and take more than they give. The industry is sponsored in great by those who are "unsuccessful." Many purchase and use equipment, boats, fees, etc. with little take. They contribute while few can and do have "success" where they take over their contribution. The industry benefits by staying open and allowing many to participate because I believe few succeed, many quit and many are very happy to try with little "success."
- I primarily target ahi, ono, mahi, and uku. Only if I'm not catching these fish (not biting), then I will try for one of the deep 7 bottomfish. The season closure does affect me. I just lost 95% of my part time job hours so I'm fishing full time since Feb 2010. New fishing laws do scare me. I don't know what my future holds (but I guess we all don't). I'm just trying to make a living to pay bills like most people.
- I make a living catching bottomfish w/ tourists/charter. Inshore (Hono-) we caught blue line snapper (ta'ape) and only keep what we can eat. In the last 10 years, I've seen no increase or decrease in fish! But big decrease in customers!
- Most of the "commercial fishermen" in Hawaii are part timers, legislators, teachers, etc. When I started in 1981 you could make a living alone, that is no longer true. The other day there were 34 boats I counted fishing ono between Honaunau and Okoe Bay. If these guys had a 2 fish limit and couldn't sell their catch, how many boats would have been there? This state's fisheries are a joke!!!
- Motor's broken due to fuel had to replace. Had to replace 2 built in fuel cells in boat (fuel). Had to replace fuel system (hoses,filters).
- In the past the bottom fishery was a "repressed" fishery few people bothered to fish bottom. With the bottomfish areas open, it was up to the fishers to hunt, fish, and spend the money it took to find them. Now bottomfish are big news and most of the good places to fish are closed to fishing. Most of the fishermen who knew how to fish bottomfish have retired or died.
- Plenty of bottomfish outside Hilo, it's the daily current that puts a hurting on us. Sharks, sharks, sharks from Mar to Dec. Taking a loss. Our window of opportunity to bottomfish is roughly 3-4 months.
- Kona is a money hungry town with majority haoles that do not understand how to malama our fish supplies. South Point to Kalapana is the last hope for strong fish populations and there is not enough fish to keep those Kona guys rich!
- I have lots of spots and all of them can only be fished in certain conditions. The weather dictates where we can fish and when we can fish.
- Lots of predators around the fishing grounds. They eat a lot of my fish. Opakapaka moving into shallower areas - lots of ta'ape in the deep. Currents

change everyday. It's not a steady current. There are currents when fish bites best. Seen lots of change in bottomfish but it's not overfished.

- The bottom fishing season is weather dependent and is also influenced by the presence of large aku and ahi, as most of us presently in the fishery also troll. Because of this the season for BF is usually Sept (when Kona wind conditions start) to Mar/Apr when they end and South Shore surf increases.
- I fish charter - only go for food once in a while.
- I feel that my family we enjoy our Deep 7 fish. We care for catch. We catch what we can eat and share with our family. We don't eat bottomfish from other states!
- You cannot use more than 6 hooks for any type of bottomfish. They use 60 hooks to catch aku at the buoy.
- I had a hard time answering the questions cause my target is palu ahi. That's the only time I catch paka or lehi. I do not go for bottomfish.
- Qualifications of my responses:
  1. Since TAC, I refrain from Deep 7 targeting to allow high-liners who make a living from bottomfish. I only go when family/friend request "red fish" for celebration or ceremony.
  2. I maintain a CML primarily to record my catch as a steward of the resources. Eat/share are the primary motivation following the "health and well-being" benefits of fishing. Sell only when above is exceeded.

Expenses & Profits

- My boat is 27 ft long. I have spent more than $15,000 on bottom equipment in the past three years.
  Trolling - my boat with 300 HP burns far less fuel than my fishing friends . My fuel consumption is 2.5 gal/hr fast troll.
  12 hours= 30 gal @ $3.84= $115.20.
  Ice is cheapest at Costco
  10 bags @ $3.00= $30.00
  Just for ice + gas = $145.20.
  Not including slip cost, insurance, maintenance, etc. You have to catch an ahi every trip just to break even.
- I've been fishing for 15 years. Seen no major income of [illegible] in lite tackle bottomfishing.
- I can give my boat away, but under state of Hawaii laws would need a temporary mooring agreement which costs $2 per ft per day for length/boat or $68 a day for my boat/$2040 a month/$24,480 a year. Present waiting list is two yrs, so my boat is worthless.
- On a personal note, I've invested a lot of money into my fishing vessel to be able to provide for my family which includes one special health needs child. I am a life-long resident and for many years it is known that our island have the worst economy, the highest cost of living, and the highest unemployment rate. I

implore you to highly consider my suggestions for how Hawaii's bottomfish fisheries should be managed. [limited entry]

- The amount of money spent on fishing is so much higher than trying to make a profit is impossible. For me because time spent on the water. Also I just love to fish, that's why I spend all that much money.